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Fire Prevention and Fire Tests.

THE consideration of the subject of the "Architect in Relation to Fire Prevention" in Mr. Blashill's paper read at the Institute of Architects last Monday, renders this a suitable occasion to give some connected account of the work done during the past year at the testing station of the British Fire Prevention Committee. It is the special merit of the Reports of this Committee that, like those presented at Kirkaldy's testing-works, they represent "Facts, not opinions"; and indeed we are informed that the Fire Prevention Committee even go so far as to obtain a legal opinion, before a Report is issued, as to whether anything in its contents could be construed into an "opinion."

The Fire Prevention Committee was formed directly after the Cripplegate fire, and got to work at the beginning of 1898, and its first year was devoted to organisation, the careful allotment of the different branches of its work to the members most suited to execute it, to preparing its testing station, and, finally, publishing a rather extensive literature, including both particulars of tests carried out elsewhere, and papers on the general aspect of the subject in hand. Early this year the Committee became a fully incorporated society, and on January 26 the testing station was opened and the first test undertaken. Hence, as far as tests and Reports are concerned, we have to deal with the work in the short space of eleven months, and, allowing a couple of months for the summer vacation, we might even say nine working months.

During this period seven different floors have been under investigation, and one of these floors showed three variations in its composition. Then two ceilings were tested, and five partitions, two of which also showed variations in composition. Thirteen different doors were tested; and as regards glazing, nine casements and seven skylights, embracing together six different forms of glazing. Lastly, there were several minor tests with chemically-treated wood, with protected girders, with a safe, and with a water curtain. In considering the amount of work done, it must be remembered that tests for fire resistance, which require a long preparation in setting up the work in position, are carried out under very different conditions from tests of resistance to strain.

Among the most important and interesting of these Reports are those on the tests with the different forms of glazing. Up to the present time glazing has been a question that has been entirely overlooked as far as fire protection is concerned. We have tried to protect our walls, our floors, and our doors, but the window that looks into the area has been forgotten, quite as much as the window that faces dangerous property across a 20-ft. street. The importance of the skylight has been neglected, whether it be simply the light of a well-hole in the floor, or a light through the roof. It seems to have escaped us that large vertical window-openings practically invite the spread of conflagrations from one block to another, whilst the question of draught created through windows often governs the extent of a fire. That some of the first tests of the British Fire Prevention Committee should have been with different forms of glazing at once calls our attention to this neglected chapter of fire protection, and we trust we shall not be seeing quite so many errors in the future in this direction.

The lessons taught by the glazing tests, quite irrespective of the prominence which has now been given to the subject, can perhaps bebestseen from the two accompanying tables on casement and skylight tests (see also next page). It appears that ordinary casements of 32-oz. glass, of lead lights, and of ¼-in. plate were tested, as well as casements glazed with electro-glazed "Luxfer" prisms, electro-glazed ¼-in. plate, and with "Pilkington" wire glass. The 32-oz. glass and the lead lights practically became worthless after six and seven minutes respectively, at temperatures of about 1,000 deg. Fahr., no water having been applied. The ¼-in. plate glass, however, stood these conditions for twelve minutes. Then comes the rivalry between electro-glazed prisms, the electro-

Tests with Glazing in 2-in. Teak Casements.

(All casements 4 ft. by 2 ft. 9 in. clear.)

Number of Casements Tested.	Material Used for the Glazing.	Effect of the Fire Applied.	Maximum Temperature of Fire Applied.	Number of Applications of Water.
			Deg. Fahr.	
One ...	32-oz. glass	Fire broke through at 6th minute ...	About 1,000	—
,, ...	"Lead lights."	Glazing collapsed at 7th minute	,, 1,200	—
,, ...	¼-in. plate glass	Fire broke through at 12th minute ...	,, 1,000	—
,, ...	Electro glazed prisms	Glazing sagged and slightly let fire through at 21st minute	,, 1,300	Twice.
,, ...	,, ,, ,,	Glazing stood and let no fire through for 30 minutes	,, 1,500	,,
,, ...	,, ,, ,,	Glazing stood and let no fire through for 30 minutes	,, 1,500	,,
,, ...	Electro glazed ¼-in. plate.	Glazing collapsed at 35th minute ...	,, 1,600	Once.
,, ...	Electro glazed ¼-in. plate.	Glazing collapsed at 36th minute ...	,, 1,600	,,
,, ...	Electro glazed ¼-in. plate.	Glazing fused, but stood for 45 minutes	,, 1,600	Twice.
,, ...	¼-in. wire glass	Glazing bulged and let fire through at 34th minute	,, 1,650	Once.
,, ...	,, ,, ,, ...	Glazing bulged and let fire through at 37th minute	,, 1,700	,,
,, ...	,, ,, ,, ...	Glazing bulged and let fire through at 43rd mintue	,, 1,600	,,

Tests with Glazing in Skylights.

Number and Size of Skylights Tested.	Materials used for the Glazing.	Effect of the Fire Applied.	Maximum Temperature of the Fire Applied.	Number of Applications of Water.
			Deg. Fahr.	
One (3 ft. by 2 ft. clear).....	Electro-glazed prisms	Skylight fell in at the 21st minute	About 1,100	Once
" " "	" " "	Skylight fell in at the 22nd minute	" "	"
" " "	" " "	Skylight fell in at the 29th minute	" "	"
" " "	" " "	Skylight fell in at the 30th minute	" "	"
" " "	" " "	Skylight stood for 30 minutes	" "	Twice
" (4 ft. 6 in. by 2 ft. 6 in.)	¼-in. wire glass	Skylight stood for 30 minutes	" 1,300	"
" " "	" "	Skylight stood for 30 minutes	" "	"

Tests with Floors and Ceilings.

Floor or ceiling.	Form of construction used.	Special makers if any.	Load per sq. ft.	Duration and approximate maximum temperature of fire applied.	Effect as seen on completion of test.	Application of water.
Ceiling under wood joists	Asbestic on wood lathing	Asbestos and Asbestic Co.	No load	45 mins., about 1,500° Fahr.	Uninjured, but for some cracks developed after the test	Once at end
Ceiling under wood joists	Slag wool slabs faced with match-boarding	Messrs. Anderson & Messrs. Broadbent (jointly)	No load	60 mins., about 1,800° Fahr.	Uninjured, but for destruction of match-boarding facing	Once at end
Floor and ceiling	9 in. by 3 in. wood joists with varieties of concrete filling and a plaster ceiling	— (Note: To meet Building Act requirements)	No load	90 mins., about 2,350° Fahr.	Collapsed after the test, joists having been burnt through, ceiling destroyed, and concrete partly disintegrated	Once at end
Floor ...	5-in. steel joists with 5-in. coke breeze concrete filling	— (Note: To meet Building Act requirements)	168 lb.	90 mins., about 1,650° Fahr.	Collapsed partly at 87th minute after serious deflection, concrete also being slightly disintegrated	Once at end
Floor and suspended ceiling	7-in. steel joists with 7-in. coke breeze concrete filling on corrugated iron centering and a suspended plaster ceiling on wire lathing	— (Note: To meet Building Act requirements)	168 lb.	75 mins., about 2,100° Fahr.	Suspended ceiling fell during test and floor deflected seriously, concrete also being slightly disintegrated	Once at end
Floor and suspended ceiling	6-in. steel joists with 3-in. cinder concrete slab above on "expanded metal" centering and a suspended plaster ceiling on "expanded metal" lathing	The Expanded Metal Co.	140 lb.	75 mins., about 2,100° Fahr.	Uninjured, but for slight superficial cracks in concrete and slight deflection, plaster however falling from suspended ceiling on application of water at end of test	Once at end
Floor and ceiling	12-in. steel joists protected by clinker concrete with framing of 2-in. steel bars and 4-in. clinker concrete filling, having further layer of 2-in. coke breeze concrete above and a plaster ceiling below	The Columbian Fireproofing Co.	168 lb.	150 mins., about 2,300° Fahr.	Uninjured, but for cracks in concrete protection to girders and falling of some of plaster ceiling on application of water at end of test	Once at end
Floor ...	9-in. fir beams bedded in fireclay	—	20 lb. (nominal)	100 mins., about 1,900° Fahr.	Uninjured, but for charring 2 in. deep to soffit	Once at end

NOTES.—The superficial area was in each case 100 square ft. (10 ft. by 10 ft.). The temperature of the fire applied increased gradually. The ceilings or floors tested were about 8 ft. above the floor of the testing chambers. Water was applied at the end of each test, generally for two or three minutes from a manual fire engine, and from below.

glazed ¼-in. plate, and the wire glass, which may be taken to have resulted slightly in favour of the latter, if we consider times, temperatures, and the application of water. In all these tests the casements were of 2-in. teak, and though this is one of the best hard woods for fire tests, and the best kind of framing that could be used in actual building practice, we hold that it would be very wise for the Committee to have another test with the electro-glazed ¼-in. plate and with the wired glass, as distinct from its application to wood casements, say, simply bedded into a brick wall, so that the exact relation of glazing to glazing, as distinct from casement to casement, might still be obtained. It has been quite a "neck-to-neck" race between these two forms of glazing, and the points at issue should now be decided once for all. There is one other little matter, speaking of casements, which we should like to see tested, and that is the double casement with ordinary ¼-in. plate glass, and the single casement with two layers of plate glass, with, say, ½ in. of air between.

As distinct from the glazing in a vertical position, the second table deals with glazing in a horizontal position. No tests have, so far, been undertaken with ordinary glazing in this direction, and we simply have the results of five small skylights with electro-glazed "Luxfer" prisms against two large skylights of "Pilkington" wire glass. The results of the comparison are obvious, *i.e.*, the wire glass appears in every way superior to the electro-glazed prism in a horizontal position. The reasons, too, are obvious. The prism work had apparently been designed and constructed for vertical application, as far as fire resistance is concerned, and to apply the same horizontally merely shows want of common sense on the part of the maker. It is one of the curious characteristics of some manufacturers, that, though they may possess a satisfactory invention, they do not understand its proper application; and we here have a striking case in point, for, if the copper bands and brass frame of the prism glazing had been strengthened for horizontal application, better results would, no doubt, have been obtained. As it is, the wire glass maker came out with flying colours. This skylight test should alone be a warning to architects to carefully consider whether a material brought before them which fulfils one specific purpose can also be safely applied for another. What is suitable in a casement is not necessarily suitable in a skylight, and *vice versâ*.

We may now turn to the floor and ceiling tests. The architect has been used to speaking simply of a "fireproof" floor. The object of the floor, the purposes to which it is applied, &c., have had little consideration. Whether a warehouse floor would be able to withstand a very severe fire of three hours duration, or whether a floor in a tenement building will suffice if it will withstand a medium fire of, say, one hour's duration, does not receive proper attention, and we sometimes find the heaviest warehouse floors applied to the suburban flat, and the light unsuitable floor used in a City dry-goods store. There has also been very little question of discriminating between floor protection and ceiling protection. If an ordinary floor has been provided with a ceiling of certain resistance, it is too often termed a "fireproof" floor. As far as we can see from the tests, the Committee seems to rightly treat a ceiling on its own merits, and to consider that if a ceiling applied to wood joists will protect those wood joists for an hour's fire of, say, 1,800 deg. Fahr., that ceiling, as such, may be said to have done its duty.

Again, the Committee seemed to discriminate between floors which are light floors, and might be taken to resist a fire of a temperature up to 2,000 deg. Fahr., for, say, an hour and a half, and a heavy floor which will stand temperatures over 2,000 deg. Fahr. for a longer period. We do not say that such a classification has been made, but, taking the reports side by side, it would almost seem so; and if this be the case, we think that, as far as the ceiling is concerned, the Committee have just taken the right measure; but, as far as the light floor is concerned, its fire resistance should, at least, be one hour and a half of 2,000 deg. Fahr., whilst the heavy floor should stand considerably more than two hours at 2,000 deg. Fahr. In other words, whilst the Committee have taken their measure quite correctly for the ceiling, they should increase the severity of their tests for both classes of floors. As far as the heavy floor is concerned, they should, perhaps, even apply a heavier load than a hundredweight and a half per square foot, and a drop load might also be applied.

We have again tabulated some of the results, and we here at once have one serious matter to point out. The tests prove that the requirements of the London Building Act in regard to fire-resisting floors are quite inadequate even in respect to what we term a light floor, or a floor that will stand for an hour and a half under a temperature of 2,000 deg. Fah. The very worst form of Building Act floor permissible has not yet been tested. In other words, the Committee has not yet tested what the speculative builder would put in when trying to scamp his work; say, light wood joists as allowed by the Act, with a 5-in. filling of coke breeze concrete, ordinary jointed boarding above, and perhaps light match-boarding below. But a floor that is a good deal better has been tried—*i.e.*, a floor of 3 in. by 9 in. wood joists, filled in with solid concrete, 9 in. deep, with a plaster ceiling below and boarding above. After a test of one hour and a half, this floor collapsed bodily; and this floor was not loaded in any way. What, may we ask, would happen to the jerry-builder's floor, as described above, with, say, a load of half a hundredweight or a hundredweight per square foot?

We have another case in point as to the insufficiency of the Building Act, for we see a test of a floor of steel joists, and 5-in. coke breeze filling, first showing serious deflections, and then partly collapsing after one hour and twenty-seven minutes before the application of water, and at a temperature of between 1,600 and 1,700 deg. Fahr. Further comment is needless.

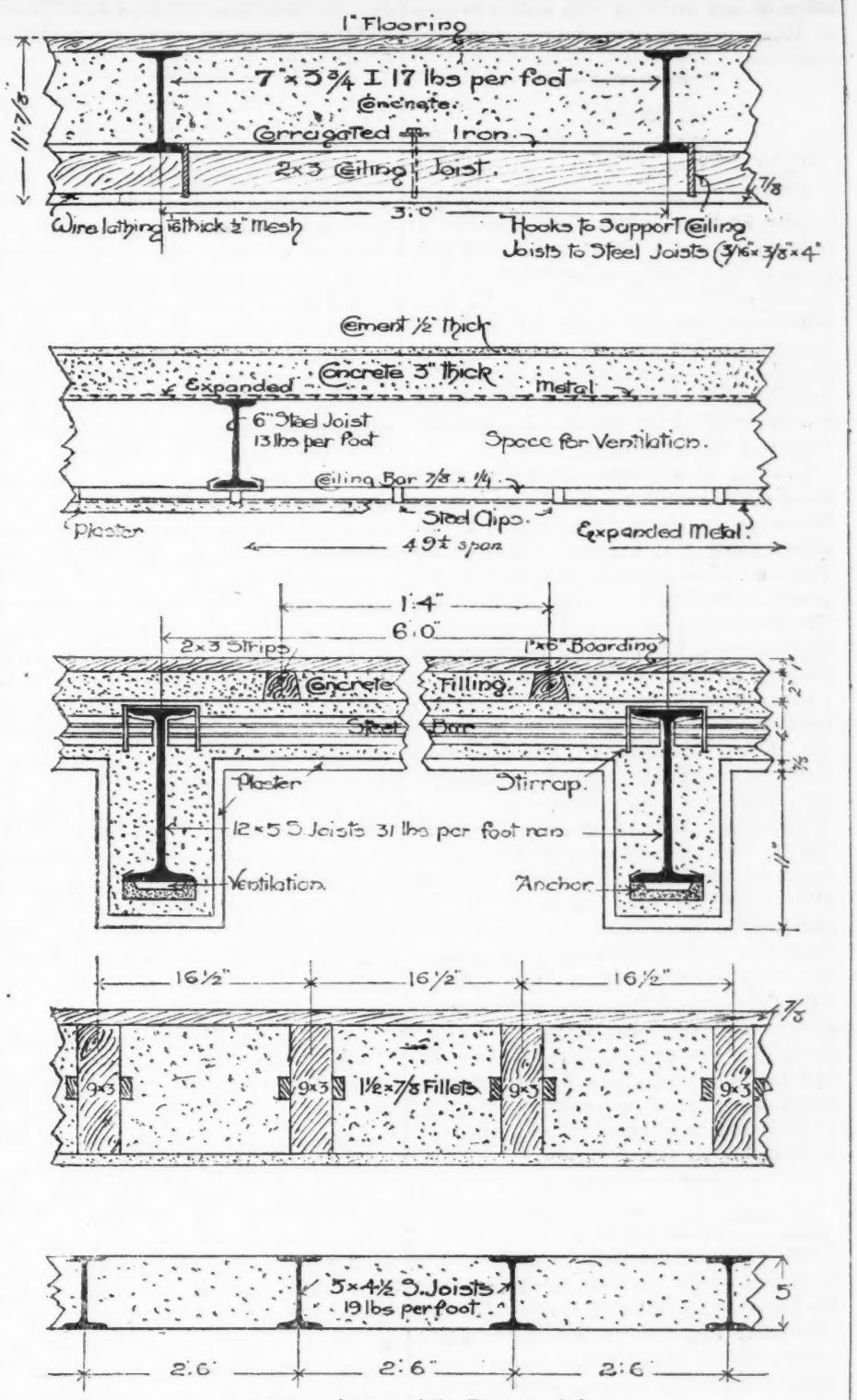
If the floor tests have done nothing else, we can at all events now understand why the layman laughs when he hears of a "fire-proof" building that has been completely gutted, although "fully complying with our Building Act." We should strongly advise he London County Council to have some further floors tested by the Committee, according to their own specifications, so that something more practical might be arrived at when the Building Act is again amended or Schedule II. elaborated. The Act was of course drafted on what might be termed "experience" or by rule of thumb, but the Council have now an opportunity of getting precise facts, and it would be to the advantage of the Metropolis if they availed themselves of the existing facilities.

As regards the other floors, we do not wish to speak particularly, except to say that we congratulate the Columbian Floor Company on having so far the highest record, and to express our surprise that the Expanded Metal Company should not enter the lists for further tests at higher temperatures and for a longer period, as, judging from their American experience, they ought to be able to do quite as well as the first-named company. What is, however, more surprising is that the various terra-cotta floor companies, who have been so conspicuous by their advertisements, should not yet have presented any floors for trial. Possibly the temperatures have frightened them, or yet more likely the application of water. The fact of their having absented themselves so far has, however, certainly given the concrete firms a considerable advantage.

We cannot at present examine the results of the door tests obtained in the same way as the other series of tests; and, in fact, we think the whole question of doors of sufficient importance to be dealt with at a later stage, when this series is absolutely complete. Up to the present time, the Committee have tested two ordinary deal panelled doors, a small teak door, and then a set of doors of identical dimensions, 2-in. solid, constructed respectively of teak, American oak, Austrian oak, deal, poplar, pitch-pine, walnut, and mahogany; and they have commenced some tests with armoured doors and iron doors. The one thing to be learnt from the wood door test, so far, is that everything depends on the good construction of the door in the first place, and its good fitting and hanging; whilst secondly, that the difference between solid deal and oak does not seem to be as great as is generally imagined. The armoured wood door, further, does not appear to be as superior to the ordinary iron door as we should have expected. Speaking generally, from the results up to date, the best doors tested have certainly been the 2-in. solid oak and the 2-in. solid teak door, made in the ordinary way.

Of other tests, we would only refer at the moment to the one with treated wood. The non-flammability has certainly been forcibly proved under trying conditions, but we should like to see the practical application of this wood, say, in the door series, or partition series. We think the makers in question should try to convince architects that by applying their chemicals to a deal door, for instance, the fire resistance of such a door would be increased, say, to the extent of that of an oak or teak door. We certainly think that non-flammability is an advantage, but non-flammability without some appreciable fire-retarding qualities has neither a fire insurance nor a Building Act value.

Looking to the nature of the work already done, we may feel justified in saying that the Fire Prevention Committee's Reports have become an indispensable factor in the



Sections of Some of the Floors Tested.

office of any architect who wishes to keep in touch with modern fire-resisting construction.

NOTES.

The Clergy and Artists' Association.

This Association, which was formed with the object of bringing the clergy, when they require works of art in their churches, in direct relation with artists, in place of their going to firms trading in "ecclesiastical art," seems to have come to grief mainly, as we understand, owing to a general feeling of distrust on the part of members of the Association in respect of the arrangements made by the Committee of Direction, and also, it would seem owing to the unreasonable spirit displayed by some of the artist members. The views of a number of the members were embodied in a set of amendments drawn up to be brought forward at the annual meeting at Leighton House on the 15th inst., when a new set of rules were proposed by the Committee to be passed *en bloc*. The Secretary, apparently judging that the meeting was likely to prove too strong for his party on the Committee, thought fit, on a minor point, to adjourn or break up the meeting. In consequence of this procedure the Bishop of Rochester, Sir W. Richmond, Canon Gore, Canon Scott Holland, Mr. Holiday, Miss Rope, Mr. A. G. Walker, and other members of the Association, have withdrawn, and also several members of the Committee, including the Hon. Mabel de Grey, Miss Emily Ford, and the Rev. Percy Dearmer. A provisional committee was formed after the meeting to take steps for constituting a new Association with the same objects. As far as we can gather, it appears that the authors of the amendments were reasonable in their objects, and that the Association has really been wrecked by the unbusinesslike and dictatorial action of the artists chiefly concerned in its management.

The Public Health Act and Private Statutes.

An interesting and important case is reported in the current number of the "Law Reports."* It is that of the Uckfield Rural Council *v.* the Crowborough District Water Company. The latter had by a special Act obtained power, among other things, to put up a water tower for the purpose of their undertaking, and, of course, to purchase land compulsorily. It was contended by the District Council that the company was bound to give the usual notice in writing of their intention to build, and to furnish plans and sections as required by one of the by-laws which had been made in pursuance of Section 175 of the Public Health Act, 1875. It was decided by the Court that the Council was right. The special Act gave the company a right to take land for the purpose of the undertaking and to make the necessary communications, but it did not exempt them from the Public Health Act. It may no doubt be vexatious to have a District Council interfering with an important commercial undertaking; but, on the other hand, the Legislature has intrusted this body with the power of looking after the sanitary condition of the district. In our opinion the proper course for a company to pursue is to have some limitation of the authority of the local body placed in the special Act, so that the Local Authority may have no more to do than see that the sanitary condition of a building is satisfactory.

* A Report also appeared in our issue for November 4 last.

A Year's Boiler Explosions.

The Board of Trade Report on the working of the Boiler Explosions Acts for the year ending June 30, 1899, has now been issued. The deaths and injuries recorded during the year are above the average. Out of the thirty-six deaths, however, the Barking explosion accounted for ten, and for twenty-three injuries out of a total of sixty-seven. Only one explosion of a heating apparatus is mentioned, and fortunately it did no damage except to the chapel in which it occurred; the apparatus was on the high-pressure system, and the explosion occurred in consequence of the circulation being checked by air in the pipes. The most interesting feature of the Report is the apportionment of blame for the several accidents. In no case did the Court attribute the explosion to unavoidable accident, and in only one case did the Court find that no one was to blame. Seventeen persons were admonished by having to pay towards the costs of the inquiries sums ranging from 10*l.* to 125*l.*, and it is interesting to note that three of these penalties were inflicted on men because they had proved themselves "incompetent" for the work they had undertaken. Several explosions were, as usual, due to ignorance, but the Commissioners will no longer take this as an excuse; they hold that it is the duty of the user of steam appliances to ascertain that they are "kept in good condition," and if he cannot do this himself, he must employ "a competent person" to do it for him.

Builders and the Public Health Act.

A case of much importance to builders was decided this week by the Queen's Bench Division. The point was very simple. A firm of builders were convicted of an offence under the Public Health Act, namely, by putting up a building in a manner which was in contravention of a local bye-law. But no alteration was made in the building, and it remained as it was. Thereupon, proceedings were taken against the same builders for an offence under Section 158 of the Public Health Act, for "a continuing offence." The Court held, however, that the builders were not liable. The person who was responsible was the owner who allowed the building to remain in the forbidden state. This is a common sense interpretation of the section. On the other hand, a builder who erects a building in contravention of a by-law is only doing the work in execution of an order from a building owner, and if he is not liable for a continuance of an offence, why should he be liable in the first instance? But having quitted the premises the case against the builder has really, even in law, disappeared. However, so long as the law is clearly declared that is the important matter.

The Proposed New Thames Tunnel.

A company, under the style of the Purfleet and Gravesend Junction Railway, have deposited plans and surveys in the Private Bills Office in respect of their project for constructing a new railway to join the London, Tilbury, and Southend and the South-Eastern (North Kent) lines. Their railway is planned to begin from the former line at a point distant one mile, north-west, from the level crossing over the road from Purfleet to Wennington, and passes thence beneath the Thames, to join the latter line between Dartford and Greenhithe stations, at a point half a mile distant, east, from the road leading from the London and Dover road to Colton Farm; the company also propose to enlarge and improve Gravesend station. We may here recall the similar enterprise of Ralph Dodd, the engineer, who in 1798, having obtained an Act in that behalf, began the construction of a tunnel between Tilbury and Gravesend by sinking a shaft to a depth of 75 ft. below low water-mark, at the Old Main chalk pit, Gravesend; the work, however, was abandoned five years later. In 1804 Vasey and Trevethick tunnelled to a length of 1,030 ft. beneath the river from Rotherhithe, but the soil fell in and the scheme was relinquished. Brunel began his Thames Tunnel in March, 1825.

Electrical Time-Service.

The paper read by Mr. Hope Jones at the Institution of Electrical Engineers last week on "Electrical Time-service" treated an important subject in an interesting way. His idea of having clocks in buildings not only regulated but driven from a central station is a good one, and he says that on his system he can guarantee perfect time keeping and immunity from breakdowns. We understand that he has already fitted up several important installations, which have been working satisfactorily for some years. In several large blocks of offices in the city his time-service is installed. The tenants pay a guinea per dial for the first year, and 10s. 6d. per dial per annum afterwards. The advantages to the tenants of having Greenwich time guaranteed, and of being spared the weekly visits of the clock winder, are obvious. Even at these cheap rates, there is plenty of margin for profit to the financier, as the cost of a central station on this system need at the outside be only a few hundred pounds. In the subsequent discussion it was objected that the use of overhead wires for driving clocks electrically would lead to constant breakdowns. The difficulty also of getting permission to lay wires underground in crowded thoroughfares is notorious. Even with clocks controlled electrically only once an hour, as the clocks of the Standard Time Company are, the difficulties of keeping the wires free from contact with telephone wires, &c., especially in snowy weather or during gales, are very great. Another point which some of the horologists present deemed important was, that electrically driven clocks made loud ticks. This could, however, easily be remedied in the way suggested by one of the speakers. Mr. Jones's system is particularly suitable for operating turret clocks, and would avoid the necessity of having a giant eight-day timepiece, which, notwithstanding Lord Grimthorpe's invention to prevent the wind pressure on the hands affecting the escapement, is seldom accurate and always costly. We hope that our municipal authorities will take up the question of a time-service by street corner dials, as is done in so many important towns on the continent.

A Remarkable Fire.

Mr. Crackanthorpe, Q.C., wrote an interesting letter in Tuesday's *Times* describing an alarming experience which he recently went

through at his house in Rutland-gate. Sitting in the drawing-room, he smelt burning wood, and shortly afterwards perceived smoke issuing from the crevices of the boards beyond the edge of the carpet. Hurrying towards the door, his foot passed right through the carpet and the floor, and flames burst forth, but, luckily, they were easily extinguished. The fire seems, undoubtedly, to have been electrical in its origin. The electric wires were conveyed in wood casing underneath the floor, and if, as seems probable, the insulation had been frayed, and leakage taking place between two wires of opposite polarity had started an arc, the casing might easily have been set alight before the fuse went. Mr. Crackanthorpe, instead of dwelling on his personal grievances, offers three practical suggestions to people about to wire their houses. First, to have no incased wires under floors; secondly, to use fire-resistance casing instead of wood casing, provided, of course, that this new casing is waterproof; and, thirdly, to have the wires tested for leakage once every twelve months. In regard to Mr. Crackanthorpe's first proposal, we would suggest that if metal tubing be employed under floors, as many consulting engineers advise, this would get rid of the necessity of having the casings in plain sight on the walls and ceilings as he proposes. With his second suggestion we agree, and his third is also in our opinion most desirable. If the supply companies would instruct their meter attendants to test the insulation resistance of the wiring with an ohmmeter every time they took a meter reading, information of the greatest value to the consumer and the supply company might be obtained. It would pay the companies to do this at 10s. per annum for those consumers who desire it done. At the same time we are far from deprecating thorough inspection of the house wiring by a competent inspector after it is first installed. Unfortunately, customers on these occasions are very loath to allow their floors to be lifted up and their ceilings to be pulled about to inspect the wires. This difficulty is overcome by using a conduit system which allows of a thorough inspection of the wires at any time.

Curzon-street Chapel, May Fair.

MESSRS. ROMAINE-WALKER & BESANT have been appointed architects of the buildings which the Duke of Marlborough is about to erect on the south side of Curzon-street. The cleared ground, which takes in all the space between East and West Chapel streets and a part of Market-street, comprises the site of the chapel which belonged, we gather, to Lord Howe, as ground landlord, who has just presented the carved oak pulpit to the parish church of Penn, Buckinghamshire. In the *Penny London Morning Advertiser* of June 4 and 6, 1744, is an announcement of the building of the chapel—on a parcel of ground opposite the "Old Chapel"—setting forth that marriages would be performed there upon payment of one guinea, "Mr. Keith having given his register to the new clergyman." In an advertisement (relating to his wife's obsequies) in the *Daily Advertiser* of January 23-30, 1750, Keith describes his

"little chapel in May Fair, near Hyde Park Corner, opposite the great chapel, and within ten yards of it; there is a porch at the door like a country church porch."

The May Fair marriages* came to an end with the passing of the Marriage Act in 1754; in November, 1890, was issued to members of the Harleian Society "The Register of Baptisms and Marriages of St. George's Chapel, May Fair," printed from a transcript of the registers kept by the Reverend Alexander Keith and his assistants in the interval 1735-1754. The Market, "Shepherd's Market," of which a portion yet remains, is named after Edward Shepherd (the architect, it seems), who, in 1708, was rated to the poor of St. Martin-in-the-Fields "for ground rent of the Fair, market, and one house, 1*l.* 1s." The fair, a survival of one granted by Edward I. to St. James's Hospital, was established *temp.* James II., and held at May-time in the Great Brook field, fourteen acres, on the right bank of the Ay brook or Tyburn—a part of Lord Berkeley of Stratton's estate, and now covered by Curzon, Charles, Farm, and Hertford streets, Chesterfield House, Chesterfield-gardens, Shepherd's-market, (old) Bolton-row lately added to Curzon-street, &c. Building upon the ground began in 1703-4; the fair was discontinued in 1708, and, having been subsequently revived, was finally abolished about 1770. Curzon-street marks the principal line of its booths and stalls; the upper floor of the market-house served for the theatre; the ducking-pond was in Hertford-street. A full account of the shows and sports is given in the *Gentleman's Magazine* (1816) by Carter, the "Architect" of that journal. An ordinance relating to the fair in Brook-field market place, May 1-16, is in the *Gazette* of February 28, 1694-5. The market was established *temp.* Charles II.

Doncaster and Mexbrough Isolation Hospital.

IN relation to the competition for an Isolation Hospital for the Doncaster Rural and Mexbrough Urban District Joint Committees, which was advertised in our columns, an architect writes to us that, in applying for particulars of the competition, he put the following questions:—(1) If an assessor was to be appointed; (2) If it was the intention to employ the author of the successful plan to carry out the work; and (3) What commission was to be paid. In reply he received only the following statement:—"We have no further information to supply beyond that contained in the advertisement." The third question, we think, had better not have been put, as it ought always to be assumed, in the absence of any statement to the contrary, that the usual commission will be paid. But the refusal to answer questions 1 and 2 looks bad, and should be a warning to architects against competing.

COLLAPSE OF A FLOOR.—In connexion with the digging of a trench for a drain in some new stables in Worship-street, which are being built for Messrs. Phillips & Son, Limited, jobmasters, by a contractor named Christy, of Shepherd's Bush, a fatal accident occurred on Saturday last. About six a.m. the first floor collapsed, and half a dozen men were buried in the ruins. Fortunately, it was a night shift which was at work, as in the daytime it was no unusual thing for sixty or seventy men to be employed. As it was, four men were injured by the falling beams and taken to St. Bartholomew's Hospital, while one man, a foreman labourer named John Birch, of Southwark, was killed outright by a falling iron girder.

* 1752, James, Sixth Duke of Hamilton, and Elizabeth Gunning; December 11, 1753, Isaac Axford and Hannah Lightfoot, the Quakeress of St. James's Market; the Duke of Kingston and Miss Chudleigh; Mr. Shirley and Baroness Clinton; 1749, William, Earl of Kensington, and Rachel Hill; 1752, Bysshe Shelley and Mary C. Michell, of Horsham.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

THE ARCHITECT IN RELATION TO FIRE PREVENTION.

AN ordinary fortnightly meeting of the Royal Institute of British Architects was held on Monday, at No. 9, Conduit-street, Regent-street, W., the President, Mr. William Emerson, presiding.

Mr. Alex. Graham, F.S.A., hon. secretary, announced the decease of Mr. Stephen W. Williams, F.S.A., F.S.I., of Rhayader, who was elected a Fellow of the Institute in 1886.

Mr. Thomas Blashill, late Superintending Architect to the London County Council, then read a paper entitled "The Architect in Relation to Fire Prevention," of which the following is an abstract:—

Fire-resisting construction has been made prominent by the Institute from time to time, but it is difficult to keep pace with increasing needs. Buildings are more lofty and more crowded and more closely packed with inflammable goods. Old residential buildings are turned into warehouses, the construction being actually altered for the worse. The Cripplegate fire was a case in point. Were it not for an efficient fire brigade we should recognise that fire risks are increasing in spite of Building Acts. There is no law to prevent this or to require efficient protection of persons and property, and the architect must in many ways go beyond legal requirements. It is he who knows the risks and the proper remedies and he cannot escape responsibility. The public is absolutely reckless of danger until some fatality occurs, then it looks out for a scapegoat. Four provincial theatres were burned during the last month. Fortunately, no one was in the buildings at the time of the outbreak, for in one case at least the building was stuffed with scenery in a way one would not think to be now possible. In London within the past week lives have been lost by an ordinary shop fire. Means of prevention must be sought. Fire-resisting materials are getting much more available, and they only should be used. They should be applied scientifically so as to minimise danger. We are much behind foreign countries in our regulations for public and private buildings as regards fire prevention.

It is a hundred times more important to the present generation that old buildings should be fire-resisting than that new buildings should be so built. The power to compel this is very limited. The architect should get it done voluntarily. Fire and panic in places of worship are rare; therefore provisions for safety have not been very much considered. The greatest catastrophes from fire, however, have occurred in churches, and there are plenty of narrow escapes even now.

There are about ten fires in the Metropolis every day; not a large average considering the number of buildings. Fire insurance discourages foresight and precaution. Hence comes risk and loss of life—the latter too frequent, though, happily, not to any great extent at one time. The public appear absolutely indifferent, and laugh at precautions, whether in places of assembly, workshops, or houses. This is not the view to be taken by the architect. He should be a diligent student in such matters, if not an expert. He should try to work with the municipal authorities and not thwart them, or be content with fulfilling the bare letter of the law.

All laws which affect one's temporary interests seem harsh. Parliament will never pass building laws which go as far as students or experts think to be necessary, nor even so far as the skilled and prudent architect may consider it advisable to carry out his work. In all our recent dealings with places of public amusement and factories, an enormous amount of improvement has been effected by the public voluntarily. When such is the case, the law can gradually be strengthened so as to bring unwilling persons into line. The architect can do much more than he may expect to persuade and convince his client that good building is cheap building in the end. The rebuilding of the Cripplegate area is a striking instance of what may be done in individual cases by the action of the architects to lessees and ground-landlords. We may hope to raise the general standard of practice to such a level as the Institute feels to be necessary.

Mr. Arthur Cates sent a contribution on the subject, which was read by Mr. Locke, the Secretary. Mr. Cates said he had intended,

had he been present, to endeavour to emphasise in the most forcible manner the lesson of West Ham, where an admirably-equipped Polytechnic Institute—recently erected and furnished at great cost—has been wrecked and much loss incurred, apparently because the very able and clever architects, possibly for economy, or merely following the customary routine, had been content to construct the roofs in the ordinary manner, without taking any fire-resisting precautions. This lesson—one only, but the latest of a long series—should be taken to heart by all architects, and by all those who may have the control of similar buildings, private houses, and mansions, which have been built or are to be built, so that due precautions may be taken by modifying the existing dangerous construction, and securing that no like error should be again committed. For something like thirty years past he had been endeavouring to advance fire-resisting construction by imposing, as far as possible, conditions requiring it in any important buildings which he might be able to influence or control. As experience had progressed, and suitable materials become better known and more available, those conditions ultimately assumed the form that "All floors, partitions, and roofs should be fire-resisting, and all iron and steel construction, columns, stanchions, and girders, should be effectually protected by fire-resisting material." As regards the construction of roofs and protection of ironwork he had sometimes found considerable difficulty in obtaining even partial compliance, the conditions being declared by architects of position to be beyond the requirements of the Building Act—vexatious and needless; but experience had fully proved their importance and value. The provision of the Building Act as to roofs, that they should be covered with slate, tiles, metal, or other incombustible material, had probably led to the idea that this was sufficient protection; but this legislation was only the minimum, and was solely intended to prevent the use of such coverings as tarred boarding or the like. The Act of 1894, in Section 62, providing that any story constructed in the roof at a height of above 60 ft. from the street level, should be of fire-resisting materials throughout, had been a slight advance in the right direction; but if the condition stated of a story in the roof did not exist, it would seem that the enactment had no effect, and the roofs might be constructed in the ordinary combustible manner. How much better it would have been to have simply declared that all roofs, the lowest part of which was above 60 ft. from the street level, should be throughout of fire-resisting construction; or, better still, if the limit had been fixed at 50 ft. However, whether there be legislation or not, it was clearly incumbent on the architects of all buildings of any importance, public or private, to so construct the roofs as to prevent the occurrence of catastrophes, which so often arose from the ordinary system of roof construction. There was in the Library a recently published book dealing with the subject of fire prevention in a very exhaustive manner—"The Fire-proofing of Steel Buildings," by J. H. Freitag, New York and London, 1899. In the chapter on "Fires in Fireproof Buildings (so-called)," the author mentions the dictum of a leading fire official in New York: "A building of brick and yellow pine in case of fire is easier to manage, and the contents have more chance of being saved than in a modern *fireproof* building." This opinion would certainly, from a fireman's point of view, be confirmed by the experience of great London fires. The earliest instance he could recall occurred more than fifty years ago. He was engaged on the drawings of an addition to an old warehouse. The new work was carried out in the most scientific method of that day, as absolutely fireproof—with cast-iron columns and girders with brick arches—and they were very proud of it. Soon after the building had been completed and occupied and filled with goods, a great fire broke out in it, with the result that their fine new scientific structure practically disappeared in a heap of rubbish, while the old warehouse, with its great timber posts and beams and thick well-tongued floors, escaped with comparatively little damage. Instances of this kind might be repeated over and over again, but they could not affect public buildings or private mansions, which were not stored with masses of combustible matter, which, when burning, generated great heat, and maintained it for long periods (light goods, however, would produce intense heat and burn with great rapidity, as in the case of the Portland Bazaar many years ago, where the most remarkable destruction and distortion of the iron girders was caused in the few minutes the fire lasted); nor could they absolve the architect in these days from the responsibility of making the roof of his buildings, as far as possible, fire-resisting, protecting the iron construction from fire action, and taking all precautions to preclude the possibility of the rapid spread of fire. Two instances might be mentioned which appeared to justify these remarks. So far as could be seen from the outside, the roof of a quasi-public building recently erected, in which a valuable library will be housed, had been constructed in the ordinary manner of fir rafters and boardings, without any provision for protection from fire, while the greatest care had been taken to render the floor fire-resisting; and in one of the prominent West End streets a very handsome stone-fronted shop building just finished was carried by iron or steel stanchions on the ground floor, all exposed and unprotected. The immense importance of the subject, and the certainty that, when a roof of ordinary construction was well alight, it was difficult, if not impossible, to extinguish the fire, and that even if success therein was attained, it could only be by the lavish application of water, hardly less destructive to the contents of the building than fire itself, led him to venture to suggest that those who have the charge of the great buildings containing our national treasures of Nature and of Art should see that effective measures are promptly taken to place any such roofs as may require it—should there be any—in a reasonable condition of fire-resistance. No question of economy should be allowed to intervene and delay the prompt and effective execution of such works as might be necessary, if at all, to preclude the possibility of a catastrophe which might involve the destruction of national treasures of inestimable value. Without venturing for one moment to presume or even to suggest that they are intended to be otherwise, it would be a great public satisfaction if an assurance could be given that the roofs of the new buildings of the Victoria and Albert Museum, South Kensington, the Royal College of Science, the new Public Offices, &c., would be so constructed as to be perfectly fire-resisting. He was well aware that great confidence was placed in having plenty of fire hydrants in and about a building. Not for one moment would he depreciate their value or importance, especially if they were ever ready for use. Too often the hose was neatly coiled as the centre feature of a fire arrangement, surrounded by the branch and other implements, and enclosed in a handsome glass case, like valuable objects in a museum. Thus, if required for use, the coupling up of hose to hydrant and branch to hose was necessitated, operations which to inexperienced and untrained hands were not very easy, and in any case might lead to serious delay and confusion, which would be avoided by the hose and branch being kept coupled up to the hydrant ready for immediate use. But "prevention is better than cure," and however complete the fire-hydrant service might be, it did not in one atom diminish the necessity for the construction of the roof being fire-resisting, so as to prevent that remarkable and sudden spread of fire which a solitary hydrant here and there could not effectively combat or control. The severe test experiments conducted by the British Fire Prevention Committee were affording means for judging of the comparative fire-resistance of various materials, and collecting information of great value, which should much assist architects in the selection of such materials as might be most likely to minimise the spread of fire; and it was much to be regretted that for some mysterious and unexplained cause the Executive Committee should have decided to withdraw from sending an exhibit to Paris next year. There are many other important matters which might be dealt with, such as the avoidance of continuous hollow spaces under floor surfaces and in partitions, at the back of skirtings, dados, and wall linings, the external protection of window openings in light areas and narrow streets, the prohibition of composition tubing for gas services, the regulation of swing burners to avoid contact with combustible material, &c., while not the least source of danger was the present mania of the shopkeeper to have his shop front all plate glass undivided by piers, with grand stone façades above the ground floor resting on iron construction, so arranged that no apparent support was visible—this and the extension of shops over the forecourts of suburban houses, including many in one establishment, would seem to need some legislative action to control.

Mr. D. Waterlow, Chairman of the Building Act Committee of the London County Council, said he was speaking on the subject as a layman to professional men. He had nothing to say as to methods of construction: his remarks would have reference merely to regulations enforced by the Building Act Committee of the Council. He was afraid that that Committee must be the *bête noire* of architects and building owners, for it was sometimes difficult to persuade them or get them to do what the Committee considered ought to be done. All the Council had to do, under fire regulations, was to see to the saving of life and they could not consider in any way the question of cost. In theatres, one great point they had to consider was the avoidance of panic. It was not so much the prevention of fire as the getting people out of a building before they were smothered by smoke, which was the essential thing they had to deal with. In almost all cases smoke was the destructive agent, for it spread with extraordinary rapidity, and the Council, where there were large audiences, had to see that provision was made for rapid means of escape in case of fire—efficient means that people could easily see. What they wanted was the avoidance of panic, and that could best be achieved by the provision of proper exits. As to factories, the work of the Council had been very much criticised from time to time. There had not been a very large number of serious accidents in factories in London and the provinces, but there was very great risk involved in factories. He had had considerable experience in factory work, having been manager of a factory for fifteen years, and the points in regard to factories, from the point of view of fire, were very much the same as those relating to theatres, only in a smaller way, except that in many of the older factories especially, absolutely no attempt had been made to provide for the safety of the people employed. At the present time there were hundreds of factories in London which had nothing but plain wood floors and plain open step ladder staircases. Those factories very often contained on the upper floors quite a large number of women, sometimes men. Very often there were forty or fifty women on the fourth floor of a factory with nothing but an open staircase for them to descend by. If even a small fire occurred on the ground floor, or in the basement, it would cause a great amount of smoke, which would rush up the stairway and render it useless, and all the women above would get into a panic and a fearful disaster would occur. The regulations which were put into force provided that there should be one fireproof staircase and some alternative means of escape in small factories; in large factories two or more. A comparatively small amount of smoke could cause a dreadful panic. He had seen thirty or fifty factory girls get scared with hardly any cause, and it was impossible to control them for some minutes. What surprised him was that more serious disasters had not occurred in the past. Unfortunately, the County Council had no obligatory power in regard to factories unless more than forty people were employed above the ground floor; in a large number of cases there were less than forty people, and frequently the number was reduced in order to escape the regulations of the Council, and thus a large number of factories were without control in that respect, though they were known to be in a dangerous condition. Recently, in a small factory, where only eight persons were employed, and where there was a step-ladder leading from floor to floor, a fire occurred, and one of the workpeople failed to escape, being overcome by smoke. What they wanted was some provision for preventing the staircase getting filled with smoke. As to the escape of people from high buildings, the Council now insisted on proper means of escape, and it was a very necessary thing to do. He had often wondered, when he had had occasion to stay at hotels, what would happen to people sleeping on the upper floors if a fire broke out below during the night. Most people would be in a terrible state if caught in such a way, as they could be in a large number of London hotels. The Council could only deal with new buildings in this respect, and he would ask architects to bear in mind this matter when effecting alterations to old buildings where the Council had no jurisdiction. There were many

buildings in London which were in great danger from fire. No matter what the cost, the saving of life must always come first.

Sir John Taylor, K.C.B., said that many of Mr. Blashill's remarks were of a most practical character. At the commencement of the paper the fact was stated that sufficient progress had not been made in the matter of fireproofing of buildings. Now, the earliest example of special floor fireproofing which he knew of was in the National Gallery. The floor of the original National Gallery was of firepot construction—arches formed of fire-pots, which was practically a fireproof construction. Brick and concrete with iron girders and joists had taken the place of that construction; but Wilkins, so far as he knew, was the first to introduce fireproof construction, as he did with his firepot method, and in that he was rather ahead of his time. Some of Mr. Blashill's remarks were extremely practical and proper from a fireproofing point of view, but there were difficulties in the way of such construction. For instance, as to laying wooden floors immediately on concrete. In a large public building there were a great many communications, &c., to be provided, such as telephones, electric and pneumatic bells, gas-pipes, &c., and if a wooden floor were laid directly on to the fireproofing construction, all of these must be exposed. It was true that some of those means of communication could be exposed conveniently, but it was undesirable, and in many instances most inconvenient, to have a lot of pipes and wires dangling about in a building; while, therefore, it was desirable to have a fireproof floor and fireproof construction, it was also, in many instances, desirable to have a space underneath so as to carry such pipes and wires. As to wooden roofs, they had been practically abandoned so far as public buildings were concerned, and for public buildings he did not think important wooden roofs would ever be used again. As to two public buildings he had lately been connected with—the Record Office and the New Admiralty—they were both absolutely fireproof. The roof of the Record Office was not only constructed of iron, but the actual covering was of iron also; there were no slates or tiles or anything of the kind: it was entirely composed of independent plates, so that in the event of fire there was nothing to burn.

The Chairman: Is the iron construction encased?

Sir John Taylor: No; but it has a fireproof ceiling underneath. As to Mr. Cates's remarks, he could only say that the greatest care would be taken in carrying out the new Government Offices and War Office buildings. But there was one thing which always tied one's hand more or less, and that was the cost. He would be told, "What matter, if the building be fireproof and of the best construction?" He agreed, but still the question was one of money. When he was once examined before a House of Commons Committee, he put forward an estimate of something like 1s. or 1s. 2d. per foot cube for the block No. 1 of the new Admiralty building in St. James's Park. A prominent public man stared at him, and said: "Would you be surprised to know that I know of a building for office purposes which has been constructed recently for 8d. a foot?" He (the speaker) ultimately got to know that the building which had been referred to was in one of the station yards of London, and was for railway-station offices. Later on in the examination he referred to the matter, and said he did not think the public would be quite satisfied with such a stock-brick erection in St. James's Park. That showed how difficult it was to get money in order to erect a building in the most complete and effective manner.

Mr. W. E. Riley, Superintending Architect to the London County Council, said that, with regard to theatres, the County Council regulations did not attempt to save the stage part of a theatre; the auditorium and the parts devoted to the public were, on the other hand, carefully considered in every case. He had received, a day or two ago, the latest legislation on Building Construction, viz., the New York Code which came into operation the previous Tuesday. The code had been under revision for two or three years, and had been framed by a commission of architects, civil engineers, and representatives of all the building interests, including masons, bricklayers, carpenters, and plumbers. It was administered by a superintendent of buildings, who did not appear to be controlled by a county council, though he was not aided by a staff of District Surveyors. He should like to say a word or two for the District Surveyors, who were a much-abused, but a very useful and a very capable body. They were all gentlemen of high professional attainments, and they did work which was not popular in an able manner, with much tact. In the New York Building Code many changes were made in building regulations. The first general improvement it adopted was as to the height of public buildings. A "public building" in New York had a much broader meaning than in London. The expression embraced a restaurant and a lodging-house, no matter how many people were accommodated in it. The limit to which such buildings could be erected without employing fireproof construction was 35 ft. in height. There was no limit at all with regard to the area. There were, as they knew, abuses in regard to what were vulgarly called "sky-scrapers," which had led the controlling authorities in the United States to be considered very far in arrear of other building legislatures, but he was amazed to find that every building, of whatever character, which was 75 ft. high, must be constructed throughout of fireproof materials. In sites for theatres, for instance, they now adopted the general rule in London of obtaining one side street and one main street in front. If they should want to build on the site of a "coal yard," the New York Code insisted upon having 7 ft. passages on each flank; that was, the front must give out on the main street, and 7 ft. passages must be provided on each flank if 1,000 people were to be accommodated. If 1,800 were to be accommodated, the passages must be 8 ft.; and if over 1,800, the passages must be 10 ft. wide. With regard to recent designs for theatres in London, it was a matter of surprise to him why they always resorted to a staircase. In New York they adopted a much more practical and common-sense mode of reaching the street—viz., by a slope. The slope was confined to 1 in 12, so that every part of a theatre and every corridor on the ground floor must communicate with one of those passages, having not less than two exits into the passages. The slopes were of fireproof construction enclosed in brick walls, with fireproof ceilings having a rise or fall of not more than 1 in 12. The vertical step of any kind whatever was in future, he understood, prohibited. That was a very important regulation in the improvement of theatre construction. The planning necessary for such a structure would no doubt be exceedingly difficult, but, as they all knew, planning was the test of every good design. There was more imagination in the man who could make a good plan than in the man who made a good elevation; at any rate, that was his experience of the work that came before him. If he got a good plan he was bound to get something practical on the top of it. There was another recommendation in the New York Code that had a very important bearing on a matter which gave a great deal of trouble in regard to theatre and music and dancing legislation in London. In New York they never allowed any place of amusement where the public could assemble—there was no limit of number—to have any connexion with either a hotel, a lodging-house, or place of that kind. That would bar all the assembly rooms and music-halls attached to public-houses. As he had already remarked, he looked upon the back part of the stage of a theatre as designed to disappear; the fireproof curtain came down at once, and forced the smoke and flame from the inflammable material through an opening in the roof over the stage. That was a very sensible arrangement, though very few of the old theatres had fireproof "flies." In the new code in New York they had adopted fireproof flies. The ceilings of the auditorium and all the partitions and enclosure were to be fireproof. All who were familiar with the boxes of the old theatres must be aware how inflammable such places would be if fire broke out. In the recent theatre fire at Newcastle, the only part of the building that was left was that portion which was of fire-proof construction; the roof and every part of the ceiling was gone, alterations had been made at a cost of some 15,000*l.* or 16,000*l.* only a few years ago, and those were the portions which were supposed to have been rendered quite safe. He had collated the latest information from various countries respecting the comparative regulations for planning of theatres on three important points, and embodied them in the following table:—

—	1. Staircases.	2. Whether theatres shall be detached buildings or not.	3. Floor of pit.
London	To be 4 ft. 6 in. wide for 400 persons, and increase to 6 in. for every further 100.	May be either attached or detached.	Must be not more than 6 in. above street, and not lower than 15 ft. below street.
Italy	To be provided as required by authority.	Must be entirely isolated, with exits on each side.	On a level with the street or not more than 6 ft. 6 in. above such level.
Lower Austria..	Sufficient to empty the theatre in four minutes.	Must be entirely isolated, and not less than 49 ft. from boundary of the land on which they stand.	Not higher than 6 ft. 6 in. above level of street, and to have inclined plains (no steps).
St. Petersburg..	4 ft. 8 in. wide for every 150 persons.	Open space to be provided on every side, and windows on every side.	No information.
Berlin	As required by authorities.	No information.	No information.
Paris	No staircase to be less than 4 ft. 10 in., and increased in width or numbers as required.	May be either detached or attached, but if latter an independent wall must be built to protect party wall.	No provision.
Brussels	3 ft. 3 in. for every 100 persons.	Entirely isolated by open space or by brick walls not less than 1 ft. 10½ in. thick.	No provision.

He had looked up particulars from various sources about the great fire at the Hotel Windsor, New York, and he thought they were interesting enough to mention on the present occasion. Accommodation was provided in the building for about 500 persons in addition to servants; the hotel was quite full when the fire broke out. There were more than 500 rooms in the hotel, and each was fitted with a safety rope, but they were not successfully employed, as women lost their grip in using them. The enclosing walls were of ordinary brick construction, the rooms being divided by stud partitions, and the various floors formed by boarding on wood joists. The internal walls, where they existed, were in many instances battened and wainscotted. The cavities and spaces thus formed flues which could hardly have been more effective if they had been designed for the destruction of the building. The two main staircases were of ordinary wood construction, having rough carriages, wooden treads and risers, and plastered soffits. There were balconies and iron escape ladders on three sides of the building, probably a total of six external escapes on each floor. The hotel was planned with a large central hall with double staircases entending on either side. The entrance hall ran from the front to the back of the hotel, and was a long and spacious thoroughfare; but this did not prevent the flames and smoke being drawn upward as through the draught of a flue. There was one passenger elevator and a goods lift; these structures no doubt contributed to the rapid progress of the fire. The building was reputed to be fireproof, but the Fire Commissioner declared that the building was one of the worst fire-traps in New York. There was great difference of opinion as to the cause of the disaster; but wherever the fire broke out it was probable that it had been smouldering for some time in some confined space before it was perceived, generating inflammable gases, which spread through the hollow floors, partitions, and cavities of the building until they suddenly ignited and involved the whole structure. The custom of artificially heating all buildings in the United States in winter so desiccated the resinous woods generally employed in their construction that they spread fire with a rapidity that could hardly be realised in our moist climate. It was stated that within an hour from the first alarm the

entire block was practically destroyed. The building generally was heated by steam conveyed in pipes. There were complete arrangements to provide against fire, and the members of the staff were instructed in the use of the apparatus on the premises, but the organisation failed at the critical moment, and a panic resulted. This was borne out by the statement made on the authority of the Chief of the Fire Brigade, that the majority of the victims lost their lives through not knowing where to find the stairs, having invariably used the elevator. The elevator was so much an institution in American hotels that this opinion ceased to be surprising; and he (the speaker) had searched in vain for any record of the guests having used the iron escape ladders which were provided. If the main staircases were not known it was hardly likely that those communicating with the balconies could be. One of the lessons taught by the fire was that a high building of this character should be constructed throughout with external and internal walls, partitions, and floors of fireproof material. No cavities should be formed in either the vertical or horizontal construction except smoke flues and ventilating inlets and shafts; resinous woods should be excluded from the carcass and used sparingly in the finishings. No hotel should have more than six floors, devoted to guests, above the level of pavement All staircases should be enclosed with substantial walls and be constructed of fireproof materials; they should be clearly indicated by printed notices on every floor. One staircase should be provided for every 100 persons accommodated. Lifts should be encased in brickwork, and provided with a restricted number of openings to the various floors, and those of the smallest possible aperture. Each floor should be provided with fusible water sprinklers to flood the lift shaft as soon as possible, and so keep the fire down in these openings, which add to the danger of its spreading when it breaks out in the lower floors. Fires which spread rapidly are deadly whatever facilities are provided for escape. The position of the dead bodies in another New York fire indicated that the inmates had excellent knowledge of the facilities for exit; the staircase was practically intact, but the victims appeared to have been overpowered by smoke and heat, which probably ascended the well of the stairs and made the normal egress impracticable. A period of five minutes was a long time for human beings to be in an atmosphere rapidly losing its oxygen, and in lieu being charged with stifling smoke, and he was driven to the conclusion that the best means of escape possible would only prove effectual when the buildings were so constructed and arranged as to prevent, with certainty, the rapid spread of fire and smoke. The heating arrangements of New York hotels in winter were a very great source of danger. The rooms are heated to about 70 deg., and, with the use of resinous woods in construction, a fire spreads with remarkable rapidity. This was indicated by the destruction of the house that was burnt down in Fifth Avenue last April. It had excellent means of escape. It was a substantial, good-looking building, apparently designed so that it should enjoy immunity from burning in any case, and the staircase was practically intact. Efforts to escape were made by the occupants, who had evidently known the whole plan of the house, but had failed to reach the staircase. Mr. Waterlow had made some excellent remarks as to the necessity for keeping smoke out of buildings. People were very seldom burnt in these fires; they were nearly always asphyxiated. In the great calamity which occurred at the Opéra Comique in Paris, many of the people never moved from their seats; they were found asphyxiated where they sat. If one considered the immense consumption of air that took place in feeding a fire, one realised with what marvellous rapidity people ceased to be able to breathe. Even if there were no smoke to asphyxiate, they would quickly become unconscious from want of air.

Mr. E. O. Sachs, Chairman of the British Fire Prevention Committee, in proposing a vote of thanks to Mr. Blashill, said it was seldom one heard a more instructive paper in which such a high tone of general principles was observed as to fire prevention; too often readers of papers on the subject dealt solely with the merits of different manufacturers' patents. There were two points he would like to deal with arising out of the paper. Architects were too prone to think that the fire prevention demanded by the Building Act was all that was required; but the Building Act, as had been said, was the minimum—the absolute minimum. That was a fact which ought to be "rubbed into" every junior member of the profession. Laws comprised minimum requirements, and every architect ought to do better than the law. Another point was as to old buildings. It was a very knotty point to know how to apply fire prevention to old buildings. In nine cases out of ten a client would not think of voluntarily improving his building, and architects could not get the client to think of fire protection in the same way as he thought of drains. Not until the ordinary building client thought of protecting buildings from fire as he now thought of his drainage, would old structures be turned into fire-resisting buildings. But it would take as great a number of years for the ordinary householder or client to learn to think of fireproofing a building as it had taken him to think of hygiene. Considerable reference had been made to safety in theatres. He preached "exits before construction." The great point was to get people out of theatres in the case of fire. As far as the public authority was concerned it should be primarily a question of proper street exits; whether the theatre were eventually gutted or not was of no concern to the official body as long as no lives were lost. As to factories, the tendency was to put them outside the area of the County of London—not as some might suppose, in order to avoid the factory Act as applied to the County of London, but so as to get other facilities which factory building outside that area gave, such as space, air, light; and the more factory building outside the London area was encouraged, the better for London generally. The hotel question was one of the most important of those touched upon. Nine out of ten hotels in London were death-traps at the present time. He had gone over many hotels to examine them from the fire-prevention point of view, and he felt it was time that something was done for buildings in which people congregated at night, as there had been done for those where people congregated by day.

Mr. H. H. Statham said that the remarks about exits in theatres brought to his mind the importance of having what he called a symmetrical site for theatres. With an angle site, they had an entrance on one side, and the consequence was that in exit the audience crowded to one point. He happened to go into the pit of one of our London theatres some time ago, and as soon as the play was over, the whole of the audience pushed to the corner, where was the door they had entered by. There was an emergency exit door at the other side, but the people took no notice of that; they went to the door they came in by. With a central lobby and symmetrically placed entrances right and left people could leave by the doors they entered at. That was an important reason for getting a symmetrical site for theatres, with an equal access on each side.

Mr. C. Forster Hayward referred to the great carelessness which was so often the cause of fires. Mr. Blashill had referred to fires in country houses or mansions, and he (the speaker) might add that there was a fire in a country mansion only the previous evening, four miles from Windsor. The heating apparatus, it appeared, was found to be defective, and it was determined to repair it at night, when the owners were in bed. Unfortunately, the workpeople dropped a lighted candle into a hole where they could not get at it. In a moment there was an immense smoke, and it was with great difficulty that the occupants escaped. Buildings were not only constructed carelessly, but they were repaired in a careless way. At a large place of public entertainment the other day he saw four lighted candles stuck down on a board and the whole of the floor was covered with shavings. There was no one near the candles and a slight movement would have set the whole place on fire. Almost the next day he went into one of the largest hotels being built, and saw on the first floor a quantity of straw burning, the straw being all over the place. There was no one about and he put the fire out himself. These two cases, which occurred in one week, might have caused two large fires. They, as architects, should endeavour to get contractors to exercise more control over fire risks by more careful supervision than there was at present. As to staircases, there was a great risk, even in the smallest fires, of concrete stairs dropping down from the "attachments," unless they were properly supported on the outer side. He had had to insist upon that in one or two cases. In a fire in a hotel, for instance, people rushed down the stairs, and if one of the treads gave way at a corner and fell because it was not supported on the outer edge, the people on the stairs and above were in great danger of not being able to escape by the stairs. At Montague-place, at the back of the British Museum, there was a fire, and the stone staircase, not being properly supported, gave way from a very little fire upon them, and some ladies only just escaped being immolated in the fire. The fire was a small one, and the British Museum fire engine soon put it out; but it had been sufficient to call the attention of the authorities to the danger which our national treasures at the Museum were exposed to. At the present moment there was a widespread tendency to construct staircases of concrete and iron in houses generally, and in such a way that the construction of them could not be properly superintended and in the case of fire to the detriment of the staircase, owing to the careless way in which the work was done. He desired, in conclusion, to second the vote of thanks to Mr. Blashill.

The Chairman, in putting the vote of thanks to the meeting, said that a remark had been made indicating an apparent unwillingness on the part of architects to go beyond the minimum required of them by law. He thought that the moral responsibility which would fall on any architect who built a building in which a disaster occurred in the event of fire was very great, and such a feeling would cause most of them to do their utmost in this respect. The question of exits was more important than that of fire-resisting material, and that view was strengthened by certain things he had seen in America. He remembered two buildings which he once saw in Chicago which were absolutely gutted, and all the iron columns and joists were twisted like thread. The buildings had been erected by a gentleman named Burn, and they were built in what was then considered the most fireproof manner; since then, more had been done in the way of casing the iron in concrete. As to the difficulty of finding one's way about hotels, in an hotel in the South of England, and also in America, a skeleton plan of the building, with the exits marked, was placed in each bedroom on every floor. In the days of easy multiplication of plans that was a good method.

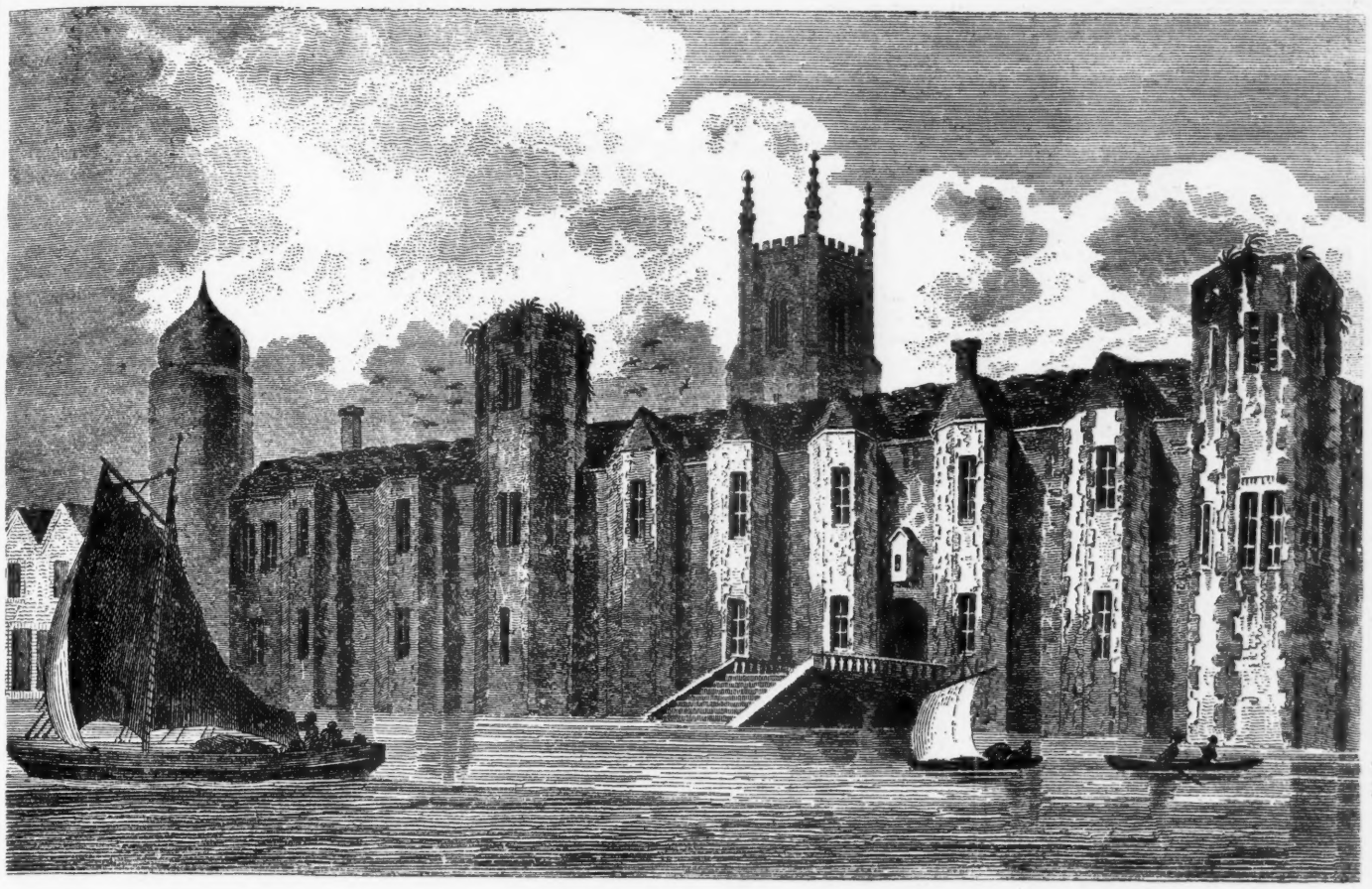
The vote of thanks was then put and carried unanimously.

Mr. Blashill, in reply, said that in the case of the Hyde Park-court fire, there was a suite of apartments in front at each end of the building—one to the right and one to the left of the staircase. One was burnt right out and the other was not burnt at all. What was the reason for that? As far as could be gathered, it was due to the fact that an outer door of one suite had been closed, and in the other it was open. As to Sir John Taylor's observations about the difficulty of laying a wooden floor tight down on to concrete, he quite agreed with him; but architects should try and overcome the difficulty in some way. Not far from where that meeting was being held, a fire took place and was extended from that cause, and it did 3,000*l.* worth of damage. The New York requirements were extremely interesting. The point made by Mr. Riley of people dying in their seats in theatre fires was a fact, as the Exeter theatre fire, some fourteen years ago, showed. The people had no time to leave their seats, for the smoke rushed up to them and they died where they sat. He was glad that every one seemed to agree that the Building Act was the minimum required. That must be impressed on clients as much as possible. The Building Act, as he had told people, was a line drawn by Parliament, which said to the unwilling ones, "On one side of the line you go before the magistrate; on the other side you escape." We must not run it so fine as that.

The Chairman announced that the next meeting will be held on January 8 for the election of candidates for membership.

The meeting then terminated.

THE SANITARY INSTITUTE.—At an examination in Practical Sanitary Science, held in London on December 1 and 2, nine candidates presented themselves, but none passed. At an examination for Inspectors of Nuisances on the same days, eighty candidates presented themselves and forty-eight passed.



South Front of Baynard's Castle, London: as it appeared about 1640.

THE ARCHITECTURAL ASSOCIATION:

NOTES ON THE STREETS AND BUILDINGS OF OLD LONDON.

THE ordinary fortnightly meeting of this Association was held on Friday last week in the Meeting-room of the Royal Institute of British Architects, No. 9, Conduit-street, Regent's-street, W., the President, Mr. G. H. Fellowes Prynne, occupying the chair.

The minutes of the previous meeting having been read and confirmed, the following gentlemen were elected members of the Association, namely, Messrs. H. B. Smith and J. S. Blunt.

The Chairman announced the commencement of the following classes, viz., January 2 at 6.30, Mediæval and Renaissance, Div. I.; January 4, Drainage and Water Supply; January 5, at 6.30, Water-Colour Class.

It was also stated that at the next meeting of the Discussion Section, Mr. V. H. King will read a paper on "The Public Monuments of London, Architecturally Considered."

The Junior Hon. Secretary, Mr. S. Balfour, announced several donations to the library, and a vote of thanks was accorded to the donors.

Mr. Andrew Oliver then read a paper on "Streets and Buildings of Old London."

Before reading his paper, Mr. Oliver referred to a large map of London which he had prepared for the occasion, which showed the sites of the old monastic establishments of London, the old churches (including those destroyed during the last hundred years), the old Hospitals and Palaces, old Leadenhall Market, the old Stocks Market, the site of the Cross of St. Paul's, &c. He then described a number of interesting lantern slides, referring, in the course of his remarks, to a proposal to remove the old Church of St. Ethelburga, Bishopsgate. The lecturer then read the following paper:—

In attempting to give in a short paper an account of some of the streets and buildings of Old London, one is confronted at the outset not so much with what should be retained, as what should be omitted. There are so many ways of dealing with the subject—so many ways of looking at it. The streets of London, full of interest and of information as they are, would be entirely lacking in these qualities were it not for the histories which have gathered round the buildings. The history of a city is built up by its buildings, and the inhabitants who have occupied them; but it is chiefly in the edifices of the past that we are enabled to discover the monumental history of its past.

We have a few scanty remains of the Roman period, and a few of the ruined and desolated monasteries, and of the early churches, which were to be found here, and we can also, in the names of the streets, trace the gradual changes which certain neighbourhoods have undergone; and even the few remains we have of a past period are getting less and less every year, until at length the only records that will be accessible will be found amongst the drawings of the antiquary and the pages of the historian. One has to read the work of John Stow to realise what we have lost in the way of ancient architecture; for few buildings given by him are now in existence. The destruction of these historical documents has been so complete that when one reads the account of London in the days of Henry VIII. it seems like a fairy tale.

Walls and Gates.

The oldest remains we have in the City are portions of the old wall by which it was encircled from very early times. The course taken by the wall is as follows:—Starting from the Tower, it went up to Aldgate and on to Bishopsgate, skirting Houndsditch, then to the churchyard of St. Giles, Cripplegate, where there is to be seen the remains of an old postern to Aldersgate. It then took a sudden turn until it came to Newgate, when it made its way straight down to the river, ending at what was afterwards Baynard's Castle, or near there.

Baynard's Castle was known as the Castle of London, and the Governor was styled Constable of the Castle of London to distinguish him from the Constable of the Tower. It is possible that it went along by the river, but few, if any, remains have been found.

Inserted in the south wall of St. Swithin's Church, Cannon-street, is to be seen London stone. From this point the Roman roads were measured.

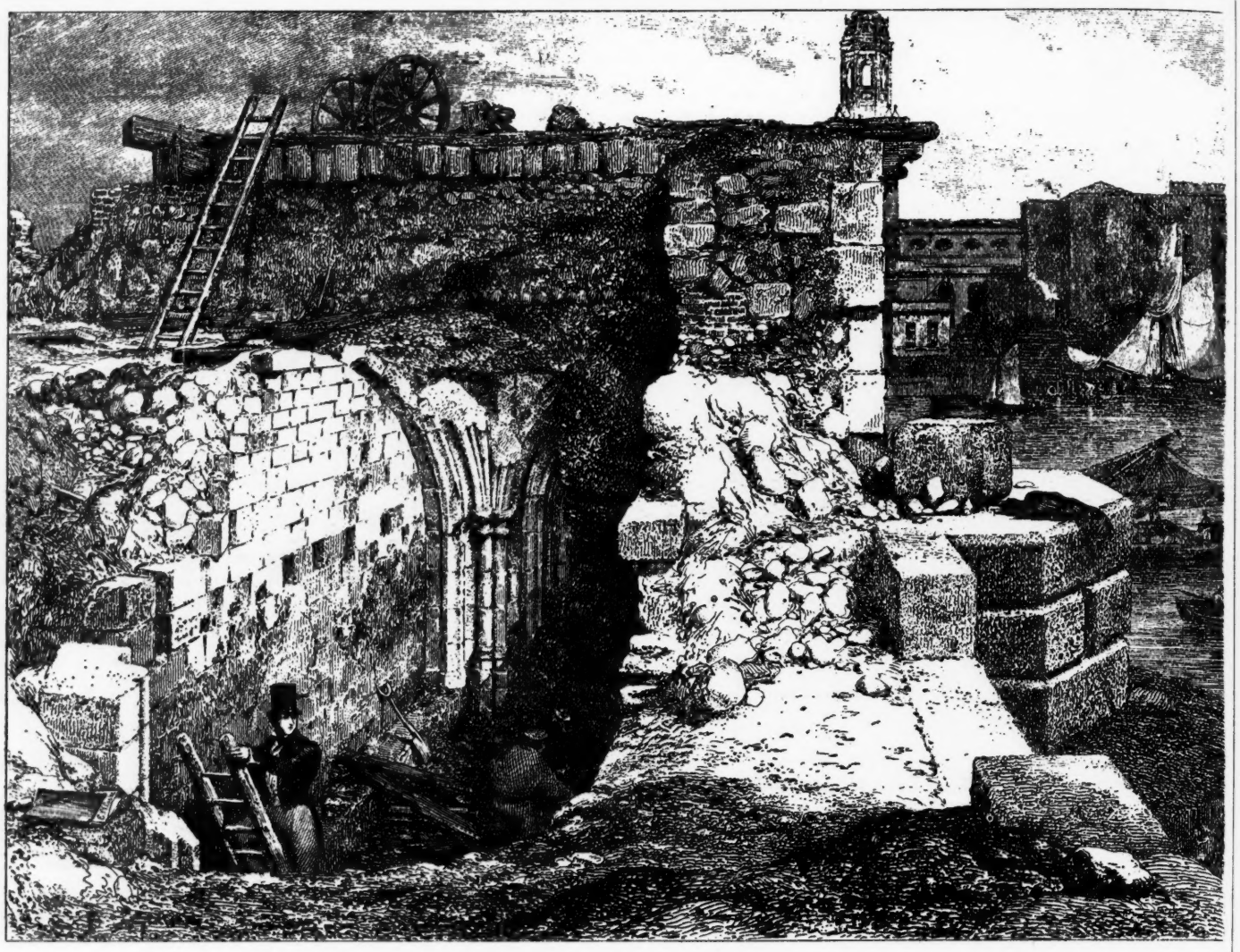
In looking through the City records, there are several items of interest in connexion with the old gates. The great gates were closed at the beginning of the curfew at St. Martin's-le-Grand, and the wickets were to be closed at the last stroke, and not opened that night unless ordered by the mayor or alderman. Edward II. ordered, after the bell had been rung at St. Thomas Acons, the wickets were to be opened (about 6 a.m.), and the great gates at sunrise. A guard was also kept at each gate, consisting of eight to twelve men, under the alderman of the ward. Tolls were levied on all carts having goods to be sold entering or leaving the City, except in the case of private individuals or goods for household use. The gate porters were not to allow lepers to enter the City. The gates and tourelles were let on lease to various persons. Geoffrey Chaucer held Aldgate in 1374. The Bishop of London always provided the hinges of Bishopsgate, taking as toll one stick from every load brought in. William Kingscote, keeper of Ludgate, was suspended for throwing stones from the top of the tower so that neither the sheriffs nor their officers could enter.

Monastic Buildings.

Amongst the buildings of Old London none were of more importance than the great monastic establishments. Sir W. Besant says:—"Within and without the City walls there stood fifteen great monasteries whose splendour only can be understood by the ruins of Tintern, Glastonbury, Fountains, and Rievaulx." Their reign came to an end at their suppression in the time of Henry VIII. and Edward VI. They may be arranged under the heads of monastic and conventual buildings, colleges, hospitals. The buildings which still possess some remains of an early period are as follows:—St. Bartholomew, Smithfield; the Charterhouse; the Temple; Austin Friars; St. Helen's, Bishopsgate; St. Mary Overie; the Greyfriars, (now Christ Hospital), gateway; St. John's, Clerkenwell. Those destroyed consist of the following:—St. Martin's-le-Grand (now the Post Office); the Hospital of St. Mary of Bethlehem (now occupied by Liverpool-street Station); Priory and Hospital of St. Mary; The Preceptory of the Knights Templars, Holborn; The Minorites, or Nuns of St. Clare (now the Minories); Crutched Friars; St. Katharine's Hospital—site now occupied by St. Katharine Docks, the tombs and fittings moved to St. Catherine's Hospital, Regent's Park; the Abbey of St. Mary of Grace, or Eastminster, now the site of the Mint; the Priory of Holy Trinity, Aldgate; the two houses of the Black Friars (one formerly on the site of Old-square, Lincoln's Inn, the other at Blackfriars, now the *Times* office); the Monastery of the White Friars adjoins the Temple.

Colleges.

St. Nicholas Brotherhood, Camomile-street; St. Thomas of Acons, on the site of the Chapel of the Mercers' Company, the birthplace of Thomas à Becket; Whittington's College, Paternoster Royal; Jesus Commons, near Dowgate; St. James's Chapel-[illegible]n-the-wall,



Ruins of Crypt of St. Thomas' Chapel, London Bridge, as discovered on the demolition of the bridge in 1832.

Cripplegate ; Holmes's College and Lancaster College, both attached to St. Paul's ; Leadenhall College, in the chapel of Leadenhall ; Pountney College, St. Laurence Pountney ; St. Michael College, St. Michael, Crooked-lane. The College of St. Mary Magdalene and All Saints, Guildhall.

Hospitals.

St. Bartholomew, Smithfield ; St. Thomas, founded in Southwark, 1313, near to St. Mary Overie, purchased at the suppression by the City ; St. Giles, Cripplegate ; The Lazar House, Southwark ; St. Anthony, Threadneedle-street.

St. Paul's Cathedral.

Old St. Paul's was surrounded by a wall which possessed six gates. They were : the Littlegate, Cheapside, St. Augustine, Paul's Alley, Canon Alley, and Paul's Chain, so called from the great chain which was drawn across. The road went along what is now Carter-lane, where stood the brewery and the bakery. It then went up Creed-lane, and so to Paternoster-row. The "Jesus Tower" was near to St. Augustine's Church, at the east end. St. Paul's was about 690 ft. in length by 130 ft. at its greatest width. It possessed the unusual feature of a north and south cloister. Remains of the latter, and also of the Chapter House, are to be seen on the south side. The Pardon Church-haugh, built by Gilbert à Becket, stood on the north, where also stood the Charnel House, which was taken down by the Lord Protector Somerset. At the west end there was a Galilee porch and the Church of St. Gabriel, and in the crypt, at the east end, a church dedicated to St. Faith.

Churches.

These may be grouped under two heads—those churches which were erected before the great fire, and those subsequently. Of the first division we have left—All Hallows, Barking ; St. Andrew Undershaft ; St. Bartholomew, Smithfield ; St. Ethelburga, Bishopsgate ; St. Giles, Cripplegate ; St. Helen's, Bishopsgate ; St. Katherine Cree ; St. Olave, Hart-street. There were three others before the fire, and not destroyed then, but they have been pulled down in later times—All Hallows Staining ; St. James, Duke's-place, Aldgate ; St. Martin Outwiche.

As regards the second division, they may be classified as those which were built by Sir Christopher Wren, and those which have been erected by others.

In the Harley MSS., 4,941 British Museum, will be found three schemes for the rebuilding of the destroyed churches. The original number proposed was thirty-nine, and the document, which authorises this number, is signed by the Primate, at the time "Gilb. Cantuar." In all there were sixty-two rebuilt, viz., fifty under the supervision of Wren and the remainder by other architects. The loss by the Fire may be briefly stated :—Churches not rebuilt, thirty-five ; rebuilt by Wren and others, sixty-two ; total, ninety-seven.

It is much to be regretted that so many of these monuments of the past have been destroyed, and the destruction is going on. Only on December 6 of the present year were the fittings of St. Michael Bassishaw sold preparatory to the destruction of the church, and in the *City Press* of December 13 the possible destruction of St. Ethelburga, Bishopsgate, is mentioned.

Two churches have been re-erected. St. Mildred, Poultry, is now the private chapel at Thorpe Hall, South Lincolnshire, and St. Bartholomew-the-Exchange, it is said, is about to be removed from Moor-lane, Finsbury, and rebuilt elsewhere.

Cheapside.

In looking through the old chronicles, we find a different state of affairs from what is in vogue at the present day.

For instance, we read that in Cheapside in the year 1273 seventeen candlemakers were expelled by the irate citizens. Bonfires of false goods took place occasionally. In 1311 at the request of the hatters search was made for bad and cheating hats, with the result that forty grey hats and fifteen black hats were publicly burnt.

In 1340 the furriers and fishmongers had a riot, and a fishmonger tried to cut off the Lord Mayor's head, and he was nearly hung for it. The pillory was also set up, and a fishmonger was put in there for selling bad fish, "and the said fish was burnt under his rascally nose." Opposite Wood-street stood Cheapside Cross, erected by Edward III., and pulled down by the Commonwealth in 1643. Bow Church, rebuilt after the Great Fire, has still in existence its Early Norman arched crypt, from which it is said to take its name, "St. Maria in Arcubus."

PUBLIC BUILDINGS.

The Royal Exchange.

The present is the third building which has been erected.

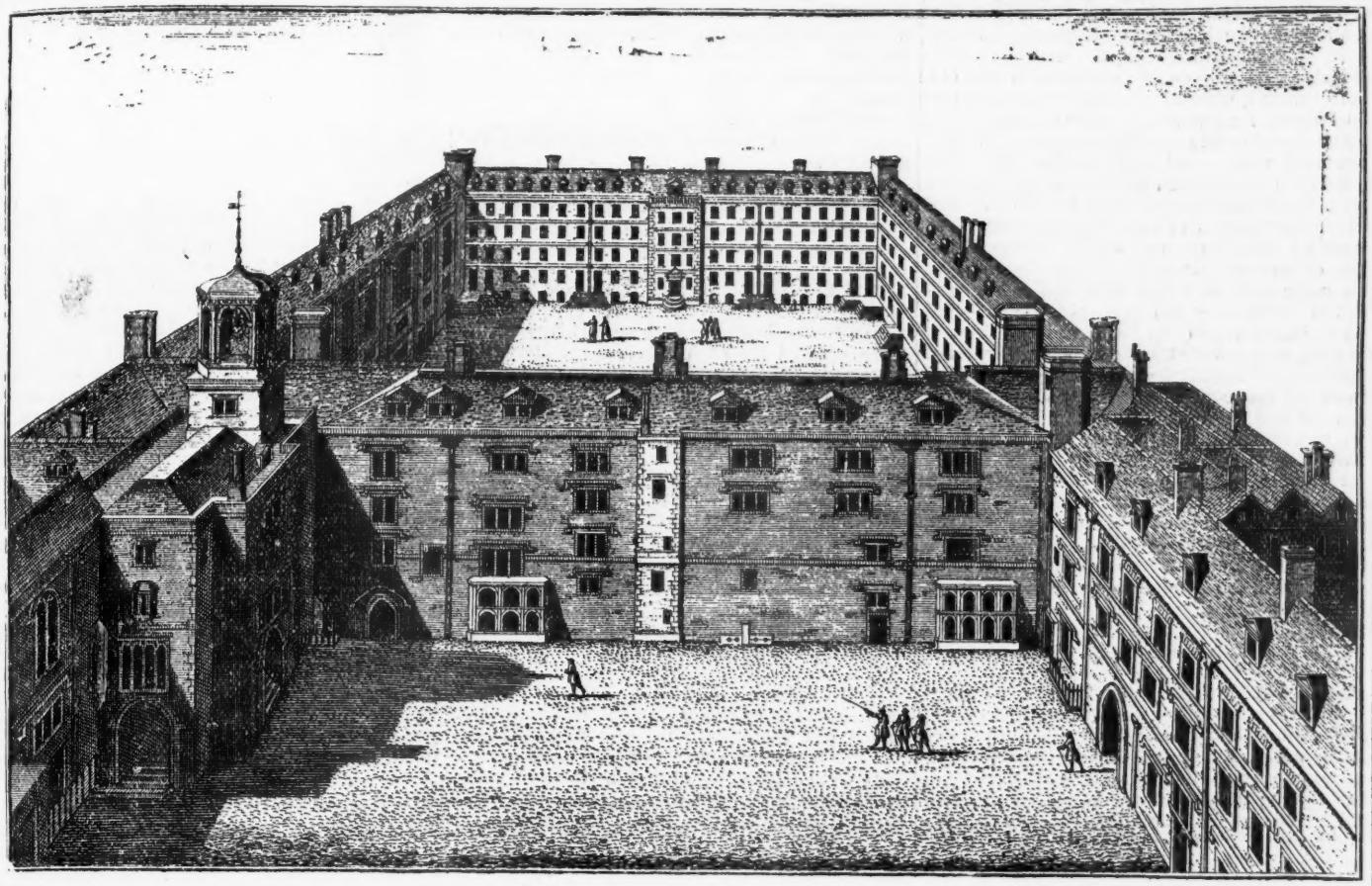
The first was commenced in the year 1566 and opened by Queen Elizabeth in 1570. It was, however, a great nuisance. We find in 1590 certain women were prosecuted for selling oranges and amusing themselves, and cursing and swearing at every one. Two years later, a tavern-keeper was fined for allowing tippling and for broiling herrings, sprats, and bacon to the vexation of the worshipful merchants. In 1622 complaint was made of the rat-catchers and dog-sellers, and bear-wards would parade before the Exchange with a monkey on the bear's back.

Gresham's Exchange was burnt in the Fire, and a new one erected by Sir Christopher Wren. In the rebuilding of London it was Wren's idea to make it the central point of the City, from which broad avenues proceeded, but unfortunately it was never carried out. This Exchange was burnt down in 1838. The present one was opened in 1842.

The Church of St. Peter, Benetfink, was pulled down when the present Exchange was built.

The Bank.

If one were asked what portion of the City has been most altered, the answer would probably be that by the Bank of England and the Mansion House (see lithograph). There is not a place more changed, or which has been more altered, than this. The Bank of England,



The Old Bridewell.

for the most part, stands upon the site of the house of Sir John Houblon, who sold his property to the Bank for a site. It consisted of a house with a frontage of about 80 ft., and runs back about 250 ft., and a garden. In front there were two small shops or stables. At that period Princes-street, as we now know it, had no existence, there being but a main court, 20 ft. wide, which came out opposite to the church of St. Margaret's, Lothbury.

Next to the Bank, as first built, there were two churches and a vast network of houses. Close to the Bank stood the site of the Hospital of St. Anthony.

This was a cell to the House of St. Anthony of Vienne. Pigs were given over to the hospital as alms. In 1311 we read that the Renter of the House of St. Anthony was sworn that henceforth he would claim no swine found wandering about the streets of the city as being alms, and that he would put no bells on them, or on those of any other person, nor would allow any such bells to be put on other than those which should be given. The saying at that time was "As fat as St. Anthony's pigs."

Three swine killers were appointed to kill all pigs found in the streets: they could be redeemed at 4d. each. If not claimed, they were forfeited, and sold to repair the gates.

The Stocks Market.

Stow says: "In the year 1282 Henry Wallis, mayor, caused divers houses in the Citie to be builded towards the maintenance of London Bridge, namely, in one void place near unto the parish church, called Wool-church, where some time had stood a paire of stocks. The building took name of Moore Stocks, and was appointed by him to be a market place for fish and flesh in the midst of the City. In the year 1322 certain markets were appointed. The stocks were let to farm at 46*l.* 13s. yearly rental. In the year 1507 the rental was 56*l.* 19s., and in the year 1543, John Cates being mayor, there were eighteen stalls for fishmongers, rented yearly 4*l.* 13s. The butchers had also eighteen stalls, rental of 41*l.* 16s. 4d., and chambers above rented at 5*l.* 13s. 4d." The present Mansion House was erected on the site of the Stocks Market. Pennant tells us that "in the market stood a statue of Charles II., given by his most loyal subject, Sir Robert Viner, Lord Mayor, which his lordship discovered made at Leghorn. The statue represented John Sobieski trampling on a Turk. The Polish monarch was christened Charles, and the turbaned Turk, Oliver Cromwell." Horace Walpole says it was unfinished, and a new head was added.

The statue remained some time amongst the rubbish of the destroyed market and was given to Mr. Robert Vyner, a descendant of the Lord Mayor. On the demolition of the Stocks Market, it was decided by the City to arch over that portion of Farringdon ditch which lies between Fleet-street and Holborn. It was opened 1737. Fleet Market lasted until 1829, when it was taken down to form Farringdon-street, and Farringdon Market took its place, opened in the year 1826. The west side of the market was taken down when the Viaduct was constructed, about 1869.

The Guildhall.

The first Guildhall was built in the year 1411 by Thomas Knoles, then Mayor. In the first year of Henry IV. the executors of Sir Richard Whittington gave 20*l.* towards the paving, and in the next 20*l.* more. In every window were placed the arms of Whittington. Sir John Shaa kept the first feast there about 1501.

The Guildhall Chapel.

This building was in existence until 1822. It was founded in 1299, with an establishment of warden, seven priests, three clerks, and four choristers.

The chapel was given to the City by Edward IV. at the dissolution of the college.

The following account of the chapel is taken from Stow:—"The chapel or colledge of our Lady Mary Magdalen and All Saints by the Guildhall, called London College; the same was built about the year 1299, and that Peter Fanelove, Adam Francis, and Henry Frowyck, Citizens, gave one Messuage with Appurtenances In the Parish of St. Foster to William Brampton, custos of the Chauntry by them founded in the said Chappell, and . . . the other house in the Parish of St. Giles Cripplegate, in the 27th of Edward III., was given to them. Richard II. granted license to Stephen Spilman to give one messuage, 3 Shops with the Appurtenances in the Parish of St. Andrew, Holborn. King Henry VI., in the 8th of his reign, gave license to the Custos to build of new the said Chappell or Colledge of Guildhall, and in the 27th year of his reign granted to the Parish Clerks in London a Guild of St. Nicholas for two Chaplaincies.

The value of the Colledge was 12*l.* 8s. 9d. The Library, which was situated on the south side, was built by the executors of Sir Richard Whittington and William Bury. The arms of the former were on one side, and the Initials WB on the other. The Books which belonged to the Library were plundered by the Protector Somerset."

Blackwell Hall.

Next to Guildhall Chapel stood Blackwell, Bakewell, or Bassinghall. In 1396-7 Richard II., in consideration of the sum of 50*l.*, granted licence to John Froxle, William Parker, and Stephen Spilman, citizens and mercers, that they might assign unto the mayor and commonalty for ever for the common benefit the said messuage, called Bakewell Hall, &c.

From this period it became established as a weekly market-place for woollen cloths, both broad and narrow, which were brought from all parts of the kingdom to be sold. An ordinance was passed in 1397-8 under the mayoralty of Richard Whittington, and another in the year following, under the mayoralty of Drew Barringtine, declaring that no foreigner or stranger should sell any woollen cloth but in the Bakewell Hall, upon the penalty of the forfeiture thereof. This was confirmed again in 1517. No manner of person being freeman of the City should suffer any person whatever, be he free or foreign, to buy or sell any manner of woollen cloth harboured or lodged contrary to the said ordinance, or any other manner of cloth made of wool within his shop unless the said cloth was first brought to Blackwell Hall.

Having stood for about 400 years, it became ruinous about the middle of the sixteenth century; and it was pulled down and a new building erected in the year 1558, at a cost of 2,000*l.*

Blackwell Hall appears to have been erected about 1672. The attic was ornamented with cornice and pediment, a stone gateway being in the centre, the Royal arms being over, and the City arms impaling Christ's Hospital on the head of the arch. This structure was taken down in 1819.

Mr. A. W. Hennings, in proposing a vote of thanks, said that Mr. Oliver had evidently devoted much time to the subject. He (the speaker) knew from experience that a good deal of time had to be given, and a good many visits made to museums and friends, in order to get on the track of some of the forgotten landmarks of London. It might appear to be a startling statement, but there was still

a wealth of old London to be found by those who cared to look for it. Let them take one small part like Ely-place, Holborn. There there is a beautiful chapel, with its crypt beneath, and no doubt underneath the old houses near it would be found remains of the old Palace. Last year he noticed a house being pulled down in the neighbourhood, and in the basement was found part of the old chalk foundation upon which London was originally built. Chalk was brought from lower down the Thames by barges and carried along the Fleet river to the marshes which formed the site of the old Palace. Deep down near the same spot was found an old plank foot-bridge which, when the old Palace had been pulled down and the modern houses erected, was covered by débris, and was not rediscovered until last year, when it was carted away by the contractor. Such an object as that old bridge ought to be put into a museum. He remembered that twenty years ago, in Hart-street, by St. Giles, Cripplegate, an old chapel was pulled down, underneath which was a crypt. He requested to be allowed to sketch it, but permission was refused, and the crypt was destroyed. That suggested the difficulty there was in preserving the remains of old London; ground rents being so high, the builder made every effort to put up a structure as quickly as possible, and any object of antiquity was promptly destroyed, unless it were some little feature that could easily be presented to the Guildhall Museum. Should it be an arch or doorway, however, it was generally immediately destroyed. That was the course pursued in Queen Victoria-street, where the remains of the old monastery of Blackfriars was found; those remains were pulled down and used as rubbish for building purposes. He thought that Mr. Oliver was incorrect in saying that the trial of Henry VIII.'s first wife took place in Baynard's Castle; it was at the Monastery of Blackfriars, to the north of Baynard's Castle. Those who cared for the study of old work could not do better than devote some time to the buildings of old London.

Mr. F. G. F. Hooper, in seconding the vote of thanks to Mr. Oliver for the paper, said that the more old London was studied, the more interesting London of the present became. Many of the old buildings and places mentioned that evening helped to enlighten us as to the meaning of many of the names and the associations of old London—recalling the existence of the different hospitals and collegiate establishments, such as Whitefriars, Blackfriars, or Cripplegate. The locality becomes vastly more interesting to us when we realise the associations perpetuated by the existing names.

Mr. C. H. Brodie referred to two interesting books on old London—"London City Churches" and "London Riverside Churches."

Mr. C. J. Williams said that after seeing the excellent lantern illustrations, he had never felt more impressed by the fact that London of three hundred years ago was, as a whole, a very much more beautiful place than London of to-day. There was one particular style of architecture which lent itself to picturesque treatment, producing an effect which was much finer than our modern matter-of-fact buildings. That certainly applied to Cornhill in the time of Henry VIII. The old Cathedral of St. Paul's and one or two of the other buildings illustrated made him almost wish that he were living three hundred years ago instead of to-day. No doubt, from a sanitary point of view, and in other ways, we had improved very much, but our modern City did not compare so favourably in other respects with old London. He could not help thinking of the magnificent width of Cheapside as it used to be, nor of the fact that we had departed from the old Roman and Saxon lines of the streets, as in the case of Watling-street, for so-called utilitarian purposes.

Mr. Matt. Garbutt said he quite disagreed with the last speaker that London of three hundred years ago was more beautiful than London of to-day. No doubt there were a good many fine buildings then, but London buildings of that day really suffered, from the picturesque point of view, from the clearer atmosphere: one had to look half across London to get the effects one got now in two or three hundred yards. Any one who on a summer's morning saw the City from the direction of Southwark, or the view looking towards Westminster, must think London a fairy city. If those views could be found in Italy, for instance, they would be advertised everywhere. The detail of some of our buildings would not bear criticism, but then, as he had said, the atmosphere helped them. Besides, owing to our wider streets (with the exception of Cheapside: all the old main thoroughfares seem to have been uncomfortably narrow), buildings now could be seen to much more advantage. Wide streets gave one a better chance of obtaining dignity and grandeur.

The Chairman, in putting the vote of thanks to the meeting, said that architects, especially, needed a map such as Mr. Oliver had shown, on which the old buildings and old parts of London were clearly marked; and it would be a good thing if Mr. Oliver could see his way to present the Association or the Institute with a map so carefully worked up. If any excuse were wanted for such a paper as they had listened to (and it was not, for they had not had such a paper for a long time), it was given in almost the first words of the paper, viz., that every year some ancient building or landmark of London was being done away with. They had heard from Mr. Hennings (what there was so much evidence of everywhere) that during excavations many architectural remains were found which would help to make the architectural history of London complete, but which were wantonly destroyed from time to time. One lesson which they, at least, could learn from what Mr. Hennings had said was that in carrying out work connected with old buildings they should avoid the temptation to destroy or remove ancient land marks, however much trouble they might put themselves to, and think of the bearing that these remains would have on the history of London. After hearing the paper that evening, they could not help feeling that the ground on which they trod was sacred. The groundwork of London was made up of the refuse of churches, and was literally paved with the ruins of the past. It was wonderful to realise how much was spent on churches in those days, and to think how much the idea of worship must have entered into the very life of the inhabitants of a town of comparatively small size. They must also feel that in London was written almost the history of our land. Now we have regulations and restrictions which prevented building in the same fanciful, rich, and free way that men in the past built: the old builders were utterly free from the restraint we had. That might be good or bad, but in past times it led to a picturesque result, which was generally satisfactory. Bound down as we are by the regulations of County Councils, Parish Councils, Local Boards, &c., it was hard to put into one's work the freedom and artistic spirit which one saw in the works of the past. As to the past *v.* the present, no doubt a modern fog did sometimes lend enchantment to the view—even the Tower Bridge stood out to some effect with the fog between it and the beholder. But let them think of our Embankment, which was disfigured by such buildings as the hotels lately built there. Such buildings destroyed the artistic value of the river, and it was a disgrace to the metropolis that such buildings should have been allowed to be erected, to the great injury of one of the finest sites in the world. Still, some beautiful effects could be obtained, as Mr. Garbutt had said. He was once walking over Waterloo Bridge in company with a foreign artist, and through a slight fog they saw St. Paul's. The effect was exquisite, and his companion said to him, "You fellows do not understand the beauties of London." There was no doubt that foreigners were much struck by the wonderful effects which our misty atmosphere gave. He should like to say a word as to what the Association was doing with regard to old buildings in London. A sub-committee had been appointed, and sometime ago, in the "Notes," they published an outline of old buildings to visit, so as to help students and others. The committee was trying to remodel the scheme, but the subject was a difficult and a large one to deal with. What they wanted to do was to get to know of all the old architecture in London, and to make that their foundation, and in the end to prepare a pamphlet, in which would be combined all that was best and most interesting in the ancient and modern buildings of the city. He was afraid that the task would be a little invidious sometimes, for buildings would have to be selected to some extent. The committee proposed to divide London into districts, in which there would be representatives who would prepare and submit reports.

The vote of thanks was then put to the meeting and carried heartily.

Mr. Oliver, in reply, said, as regards Mr. Hennings' remark as to Baynard's Castle, it was a verbal slip on his (the speaker's) part, as it would be remembered he was describing on the map the positions of the Blackfriars Monastery and Baynard's Castle. He was obliged to Mr. Hennings for drawing attention to the error. As to the Chairman's remarks about old buildings, it would no doubt be a benefit to the profession at large if something could be done in the direction indicated; but it would also be a very good thing if the public, through the profession, could be got to appreciate what we had lost in the destroyed buildings of old London. It was all very well to say, as was often said, "It is only one now and again," but that reminded him of the doctor who was paid a guinea a day for visiting a patient. At last he refused to take the money, but at the end of three months, when he was offered the accumulated guineas, he took them, remarking, "Singly they are contemptible, but altogether they are irresistible." Singly, people did not think much of pulling down a building, but when the destroyed buildings were seen together, it could be seen how great had been our loss. He was afraid that as long as it was a case of sentiment *v.* ground rent that ground rent would always hold the field.

The Chairman announced that the next meeting will be held on January 12, when Mr. A. Bolton will read a paper on "The Dome as a Basis of an Architectural System," illustrated by measured drawings of Italian churches.

The meeting then terminated.

ARCHITECTURAL SOCIETIES.

Bristol Society of Architects.—A meeting of this Society was held at the Fine Arts Academy, Queen's-road, on the 11th inst, Mr. W. L. Bernard, the President, being in the chair. After the election of three new members, and other business, a paper on "Ancient Churches in the Diocese of Llandaff, together with Excavations in the Black and Grey Friars' Monasteries in Cardiff Castle," was read by Mr. C. B. Fowler, who has been conducting the excavations for many years past for the Marquess of Bute. The paper was illustrated with limelight views from photographs and drawings made by Mr. Fowler. The lecturer first of all dealt with the general characteristics and the special features of the ancient churches in the diocese, and illustrated his remarks by descriptions of the various archæological features peculiar to the churches of the district. A series of fonts was exhibited, from the earliest examples of Norman character to those of a later date. Mr. Fowler pointed out that in the early times, when immersion was practised, fonts were large and low; in latter times they were elevated on steps, and the bowls very much reduced in size. The low-side windows at Cogan and Marcross were then referred to, and the several reasons given by archæologists for their existence were discussed. The only original stone altar to be found in the diocese was at Norton Nottage Church, although several altar tops had been unearthed from porch floors, where they were generally found face downwards. Sanctus bells were rare; only two were known—those at Porthkerry and Welsh St. Donats; the latter was fixed on a yew beam over the chancel arch on the chancel side, and it was believed that this was its original position. Some specimens of churchyard crosses were thrown upon the screen, but most of them are now minus the shafts and tops; those at St. Donats and Llangan were the most perfect. These crosses almost in every case stand on the east side of the south entrance or porch, and generally a yew tree stands within a few yards of them. There was little doubt that the majority of the towers of the early churches were fortified, and the large enclosed graveyards used as a refuge for the cattle of the villagers during the incursions of the wild borderers. The second portion of the lecture dealt with the ancient monastic buildings of the Black and Grey Friars, which of recent years have been unearthed at the cost of Lord Bute, under Mr. Fowler's direction. Plans of the respective monastic buildings were shown, together with specimens of inlaid tiles, painted glass, metal work, sepulchral slabs, and other features of

interest discovered in the course of the excavations. Lord Bute had taken much interest in it, and gone to great expense in laying out the sites of these monasteries. The remains of the tops of the walls had been protected by brickwork and planted with flowers, so that in the summer time the entire plan of the monastic buildings was outlined in Nature's colours. Mr. Fowler dwelt very fully upon the foundations and arrangements of these monasteries. Upon the motion of Mr. Frank Wills, seconded by Mr. G. H. Oatley, a vote of thanks was accorded to the lecturer.

EDINBURGH ARCHITECTURAL ASSOCIATION.—At a meeting of this Association, in the Royal Institution on the 13th inst., Mr. F. W. Deas, architect, read a paper on "Twelfth Century Buildings in South-Eastern Italy." After a short historical introduction and a description of the character of that part of the province of Apulia, which borders the Adriatic, the lecturer dealt with the various churches, dating from the end of the eleventh to the middle of the thirteenth century. These were fairly similar in plan and treatment. A lofty, narrow nave was flanked by side aisles, with recessed chapels, the transept was aisleless and of the full height of the nave, and no chancel intervened between the eastern apse and the body of the church. The building material was tufa or travertine with a free use of marble, and the colour of the walls from long weathering was sometimes of great beauty. Splendid as were these churches in their scale, proportion, and simple decorative treatment, they were not less noteworthy for the spirit and execution of the carved ornament, which, at its best, ranked beside the noblest carving in the world. This was found especially at Trani, Bari, and Bitonto, illustrations of which, along with many other churches, were given by limelight.

ARCHITECTURAL ASSOCIATION OF IRELAND.—On Tuesday, the 19th inst., an ordinary meeting of the Architectural Association of Ireland was held at the Grosvenor Hotel, the President, Mr. George Sheridan, in the chair. The following new members were elected: Messrs. G. P. Beater, C. K. Douglas, J. W. Gardner, E. W. Bartholomew, and A. C. Scott. Mr. R. Caulfeild Orpen, B.A., past-President, read a paper on "Domestic Interiors." He decided, he said, to forego historical and geographical considerations and narrowed his subject to the consideration of the comfort, as regards planning, decoration, and furnishing, of the homes of men of moderate means. He urged that comfort, mental and physical, should be the principal object. This he illustrated chiefly by pointing out what to avoid: the thousand and one blunders in planning which destroy the physical comfort and shatter the mental condition of many a householder. He considered the kitchen from the cook's point of view, and the store-rooms and linen press, dear to the heart of every housewife, from the point of view of the mistress. He urged that experience had taught him that the client himself was a person of comparatively little importance as compared with the client's wife, and gave sundry hints as how to best secure her support. He discussed fireplaces, ranges, wall-papers and carpets, and deplored the extravagance for which the ladies seemed to be chiefly to blame, which, following modern taste—in Dublin, at any rate—compelled us to fill our rooms with "antiques" from Butler or Hicks, Nolan or Naylor, which we could not afford, and which, though individually beautiful, did not make for comfort. Even more absurd, in his opinion, was the affected symplicity of interior treatment which seemed to have taken hold of the younger architects of the present day, who, apparently weary of precedent and accepted types, had, in their efforts to discard these, evolved a cult of picturesque simplicity, certainly ingenious, but eminently unsuitable for the comfort of a home. The lecturer illustrated his meaning by sketching for his audience a domestic interior of this type, with hooded ingle, panelled walls, exposed ceiling beams, &c., and, having done so, asked his hearers to furnish such a room with the comforts of a home without grotesque anachronism. On Wednesday, the 20th inst., the Association visited Messrs. Paul & Vincent's oil-cake store, Rogerson's Quay, by permission of the architect, Mr. R. H. Leask, C.E., who attended and showed the members over the building. The foundations are of unusual interest, the soil being made ground, chiefly soft mud from the river adjacent. The weight on the floors was taken at 5 cwt. per foot super, and the building is four stories high. Instead of the usual method of piling adopted in such cases, the architect has designed his footings on the "Grille" principle, both under the walls and columns. The total depth of the foundation is but 2 ft. 6 in., and it consists of a 12-in. layer of concrete, upon which are laid two rows of steel joists, one row parallel with the walls, the other at right angles. By this means the weight upon the yielding subsoil has been reduced to 1 ton per foot super. The footings under the columns, which carry 60 tons each, are designed in a similar manner.

THREE TOWNS BRANCH, DEVON AND EXETER ARCHITECTURAL SOCIETY.—The Three Towns branch of the Devon and Exeter Architectural Society held its monthly meeting on the 13th inst., at the School of Art, Princess-square, Plymouth. In the unavoidable absence of the chairman (Mr. Henry Geo. Luff), Mr. M. Alton Bazeley, C.C., occupied the chair. Mr. Edmund Sedding delivered an address on "Cornish Granite Work," illustrating his remarks with several large cartoons and with blackboard illustrations. Mr. Sedding spoke at length on the many characteristics of Cornish architecture and the use of granite, confining his remarks chiefly to the granite area of West Cornwall. A vote of thanks was accorded him for his address.——Mr. B. Priestley-Shires, hon. secretary and treasurer of the branch, will deliver the next lecture, on "Opportunities for Architectural Study." —— The members dined together on the 14th inst., at the Central Hotel, Plymouth. The chairman of the branch, Mr. Henry Geo. Luff, presided, and was supported by Messrs. James Hine, Charles King, Edmund Sedding, J. H. Dwelley, A. S. Parker, W. N. Richards, R. A. Mill, B. Priestley-Shires, M. Alton Bazeley, C.C., W. H. May, E. Coath Adams, A. Ernest Lethbridge, Arthur Heath, and Harold Watts. The toast of "The Queen" was submitted by the Chairman. The only other toast was that of "Our Chairman," proposed by Mr. Parker. In responding, Mr. Luff thanked the members for their good wishes, and hoped that during his term of office the Society would continue to prosper. During the evening, Mr. W. H. May proposed the formation of an architectural library, and spoke at length as to the details. Several pounds were subscribed in the room, and offers of books to start the library were made. A small committee, consisting of Messrs. Bazeley, May, Shires, Parker, and the Chairman was formed to develop the scheme.

ROYAL INSTITUTE OF ARCHITECTS OF IRELAND.—The annual general meeting of the Royal Institute of Architects of Ireland was held on Saturday last week at 20, Lincoln-place. Mr. Thomas Drew, R.H.A., the President, occupied the chair. Mr. Albert E. Murray presented the Report of the council, which stated, amongst other things—Our muster roll now composes twenty-five fellows, sixty-three members, and six probationers, making a total of ninety-two, so that in point of numbers we are still progressing—a satisfactory state of things. Acting as an allied Society of the Institute of British Architects, we held two examinations in the preliminary course, one in June and the second in November, seven candidates in all presenting themselves. We hope to see many more of our students coming forward to take advantage of the opportunities for improvement which these examinations afford. Now that they are being held in Dublin there can be no valid excuse for not doing so. We are glad to be able to announce that the excellent suggestion made by our President in his address last year respecting the advantages which would accrue from the establishment of a Standing Arts Committee has taken concrete shape, and such a committee has been hard at work during the latter part of the session, and has been fortunate in securing Mr. C. A. Owen as its secretary. Some valuable suggestions for improvements in the city have been brought forward, but in one case only—namely, a setting back of the line of frontage of the boundary-wall of Trinity College along Grafton-street, so as to widen that congested thoroughfare as much as possible—have they been formulated. In this instance we have drawn up definite recommendations and sent them to the proper quarter, where, we trust, they will receive proper consideration and ultimately bear fruit. By far the most important work of the session, however, has been the revision of the by-laws of the Institute. Every clause has been carefully sifted and weighed, and, where necessary, amended or recast. All obscurities and ambiguities have been cleared up so far as possible, and all redundant verbiage eliminated. The Master Builders' Association having expressed a wish that the general conditions of contract should be reviewed, and in some cases amended, we have entered into communication with them on the subject, and we expect another busy session will be spent upon this work. While it is not in the power of architects to dictate to employers the conditions on which they will consent to enter into contracts, much may be done to suggest and introduce clauses which shall be equitable and fair between the parties.—Mr. J. R. Carroll moved, and Mr. Kaye Parry seconded, the adoption of the Report, which was adopted. The officers and council having been elected, the proceedings concluded. The annual dinner was held at night in the Central Hotel, when a presentation of a gold hunter repeating watch was made to Mr. A. E. Murray, by his colleagues, past and present, on the Council of the Institute, on his vacating the treasurership, as a token of their appreciation of his services in that capacity during the last thirteen years.

LIVERPOOL ARCHITECTURAL SOCIETY.—The first members' evening of the fifty-second session of this Society was held on the 18th inst. at the Law Library, Castle-street, Mr. T. E. Eccles presiding, when a paper was read by Mr. G. W. Fraser on "Windows and their Treatment." Mr. Fraser quoted an Italian proverb to the effect that in a badly-windowed house the doctor will be a constant visitor. The lecturer, discussing the relative merits of casements and hung sashes, said there was not much to choose between them, but declared himself, on the whole, in favour of the sashes, as lending themselves more readily to ventilation. The casements, he held, if opening outwards, were not easily arranged, and, if inwards, interfered with the curtains. The ordinary bay window of the suburban house lying at an angle of 45 degs. was to be deprecated, but properly treated, as in the semi-circular and mullion bays, nothing could be finer. The Elizabethans, although they had owed many fine specimens to them, had rather overdone the window treatment, leading to Bacon's assertion that it was impossible to get out of the sunlight. It was advisable to place the window opening as near the ceiling as possible, and wide architraves should be avoided.

SANITARY INSPECTORS' ASSOCIATION

AT an extraordinary meeting of this Association, held on Saturday last at the Carpenters' Hall, London Wall, a paper on "The Food and Drugs Act" of 1899 was read by Mr. Lewis Thomas, M.A., LL.D., Honorary Counsel of the Association. The chair was occupied by the new Chairman of the Council, Mr. W. H. Grigg (Fulham). A vote of thanks was afterwards accorded, and a discussion arose in which Messrs. Dee (Westminster), Young (Battersea), H. Thomas (Bermondsey), and the chairman took part. After the vote of thanks had been responded to by the lecturer, the Chairman announced that their President, Sir John Hutton, had resigned his office, owing to ill-health, and that Sir H. Gilzean Reid had accepted the office of President of the Association.

BOOKS RECEIVED.

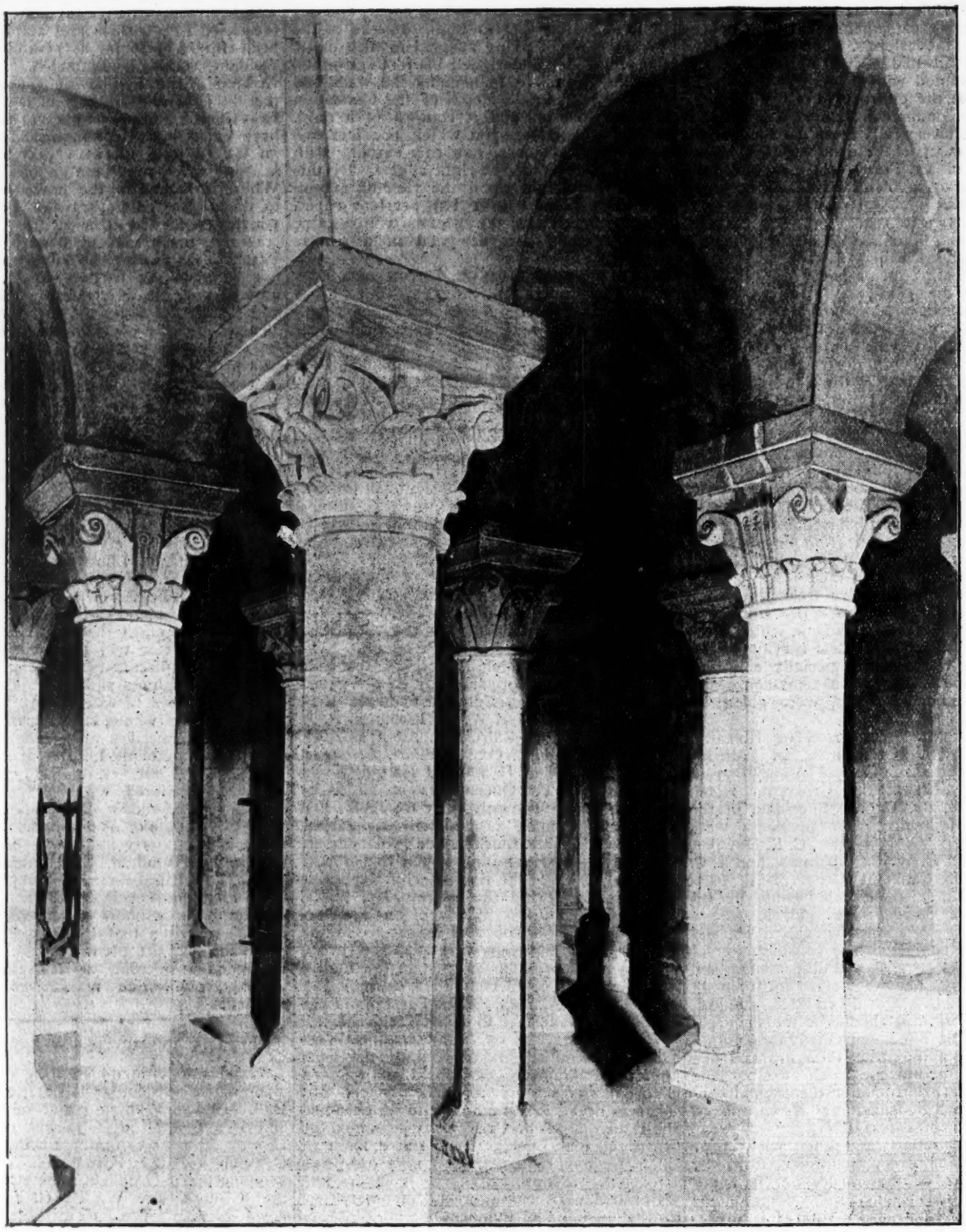
RAILWAY AND TIMBER TRADES MEASURER AND CALCULATOR. Compiled by M. B. Cotsworth. (McCorquodale & Co.)

OLD COLONIAL HOUSES OF THE CAPE OF GOOD HOPE. By Alys Fane Trotter. (B. T. Batsford.)

EASY METHOD OF KEEPING RENT AND INTERES ACCOUNTS. (Waterlow Bros. & Layton.

ABBEYS AROUND LONDON. By John A. Randolph. (The Mercantile Press.)

THE "BELL" TAVERN, CARTER-LANE.—The site of the "Bell" tavern was recently acquired for an enlargement of the head offices of the Post Office Savings Bank. A tablet has been affixed upon the new building to commemorate the fact that at the "Bell" inn on October 25, 1598, Richard Quyney addressed a letter "to my loveing good ffrend and countryman Mr. Wm. Shackespere deliver thees." The original letter, now deposited in the Museum at Stratford-on-Avon, is, it is believed, the only one now extant written to Shakespeare.



Crypt, Ste. Trinité, Caen.

Illustrations.

STE. TRINITÉ, CAEN.

THIS splendid foundation by Queen Matilda, the "Abbaye aux Dames," counterpart to that "Aux Hommes" of William the Conqueror, while not possessing, perhaps, the unique importance of its rival, is still a grand monument of the Norman school of architecture.

Unfortunately, just as modern inquiry throws doubt on the pious legend of the royal wife recording her husband's conquest in the needlework history of the Bayeux Tapestry, so the ascertained facts of the architecture of the Abbey Church leave us with only a fragment that can be safely ascribed to the recorded date of dedication in 1066.

The crypt below the choir, of which we give two photographs, the lower part of the western towers and façade, with some parts of the outer walls of nave, transepts, and of the central tower below the roof-line, alone serve to show the noble extent and character of the work initiated by the queen.

The history of the Abbey in brief would seem to be that the foundation was before 1064, the dedication in 1066; the abbey buildings as existing being the work of G. de la Tremblaye in 1704. After the revolution the Legion of Honour was in possession up to 1823, when a workhouse was created, the nave being floored over to form two stories. At this period Cotman drew it in that condition, while Augustus Pugin published his measured details from it in 1827. Since 1850 it has been restored by M. Ruprich-Robert for the French Government.

It is to the researches of this eminent architect that we are indebted for a more real knowledge of the facts of its erection. In so far as the Norman work is concerned, the work of three periods has been distinguished, the first that of Matilda, the second that of the end of the eleventh, and the third that of the middle of the twelfth centuries.

To the first period belongs the crypt, the central tower up to the roof of the church, the lower part of the western towers and front, also one of the transept and side walls of the nave. Queen Matilda would appear also to have completed the four side apses of the east end, but not to have built the choir above the crypt. Of these four apses two were destroyed in the thirteenth century, and two have been rebuilt in the restoration from their foundations.

To the second period belong the piers of the nave, which are not parallel to the side walls, nor were they opposite to the original buttresses, while the windows do not centre with the aisle vaulting, showing that an older nave had existed. At this time the choir was built, but not upon the line of the ancient crypt below.

In the third period great additions and alterations were made in order to vault both nave and transepts. In the latter a new clearstory was built and vaulting shafts were added. In the nave the whole of the wall above the arcade was rebuilt, side shafts for the diagonal ribs being contrived alongside the original single shaft that carried the trusses of the first timber roof. These shafts are to be seen in the illustration of the interior, corbelled out from the level of the triforium. It is also stated that the upper order of the nave arches was then added, and decorated with the embattled fret.

To obtain the great depth of the clearstory, the nave wall was thickened out on the outer side by lateral arches from pier to pier below

Capital in Crypt, Ste. Trinité, Caen.

the aisle roofs. Flying buttresses were also built across the aisles (not visible externally) to resist the thrust of the new nave vault; as, however, these were placed too low, the walls gave out, and an imitation vault in plaster replaced the original covering. As restored, the vault is in hollow brick with light stone ribs, new buttresses being added to the aisle walls, as may be seen in the view of the exterior.

The towers of the west front had stone spires in the twelfth century. These, however, were removed in 1360, when the abbey was fortified. Both abbeys, being outside the town walls, were excluded from the fortifications erected after 1346 by leave of King John, the English having captured the city. The removal of the spires is said to have taken place during the siege by the French, in order to prevent the English fleet from availing themselves of them as landmarks.

The resources of the Abbey were very great, arising partly from the possession of lands in England. Official visits by the abbess to this country took place even as late as 1570. Besides land grants, another source of income existed in the right to hold a fair for three days at Trinity, at which season military honours were paid to the abbess. The nuns possessed many privileges, not being subject to vows, and the Queen's daughter having been first abbess, many noble families were connected with the foundation. A girl abbess was elected on Innocents' Day, and a contribution was given to the boy bishop at Bayeux. The deeds and charters were lost in the Revolution, while the many splendid tombs were destroyed in 1562, during the troubles of the Reformation.

It is worthy of remark that the two abbeys were exacted from the Royal donors as terms of peace with the Pope for defiance of the marriage laws of the Church. The actual date of the marriage is uncertain, 1053 being suggested; but the terms of peace were negotiated by Lanfranc in 1060, after a journey to Rome.

Cotman's drawings in the "Antiquities of Normandy" give a good picture of the unrestored abbey. His view at the west end is from the opposite side to that of our illustration. From this it appears that the whole of the gable is new, and probably the filling in of the three doorways also, as he shows them built up, except for a plain, square-shaped opening in each. There is a curious difference of effect in his drawing, as in the photograph the towers look taller and the cornices are more defined.

The large grotesque heads in the corbel table of the clearstory, and the fine arcading in two tiers of the choir apse, are given in his work.

The aisle cornice, corbel table, and the buttresses seen in our view are all restorations. To the centre tower the upper stage was added in the thirteenth century, the balustrade being still later, while the upper parts of the western towers were rebuilt in 1704.

The church, by the way, is not placed due east and west, this front facing north-west.

The illustration of the interior shows the noble arcade, the scale of which, however, is by no means excessive, having a height of 23ft. by a clear way of 10ft. The height to the start of the vaulting is given by Pugin as 36 ft. 1 in. This is quadripartite, enclosing two bays of the nave, with an intermediate rib carried up from the intervening pier, so that superficially it appears to be sexpartite, as at the Abbaye aux Hommes. The vital difference, however, is that this rib carries a vertical wall sheer up to the ridge, and that the web does not come down to its curvature, as in the true sexpartite.

This rib has, therefore, no value constructionally, and the device is so clumsy in effect that it would seem as if it must be an early expedient, in spite of the evidence to the contrary.

The plan of the church, as measured by Mr. Spiers, is to be found in the 1874 edition of Pugin's "Specimens of the Architecture of Normandy," edited by him. Besides the narthex bay between the western towers, there are nine bays to the nave, forming five vaulting compartments, the westernmost being a single four-cell vault, while the remainder comprises four squares of two bays each. The width is 54 ft. from wall to wall, giving 23 ft. 8½ in. clear way to the nave and 9 ft. 4 in. to each of the aisles.

The transept is 100 ft. long within the walls, divided into five bays, and it, as well as the choir, is without aisles. The total length of the church outside the walls is 270 ft.

The termination of the east end on the original scheme was by five apses, all opening from the transept. The central or choir apse, preceded by two square bays, has a semi-dome resting on two tiers of arcades round the apse wall.

The two apses on the southern side, mentioned as having been destroyed, were replaced in the thirteenth century by a square chapel of the full extent of the transept. This is a fine work of the period, vaulted in six bays from two free standing pillars.

The crypt immediately below the choir is entered from two staircase turrets on the chord line of the apse. It is 30 ft. long from east to west by 27 ft. wide, with walls 6 ft. thick. The distribution is into five aisles each way, the height is 11 ft., and the covering is by cross vaulting without ribs. Some difficulties occur in working this out to the semicircle of the apse, the bays being necessarily distorted at the eastern end. The pillars are repeated against the outer walls, rising from a stone bench. In each bay is a slit window 5 ft. by 6 ft. clear, with wide splayed jambs within and without.

The capitals, with their volutes and foliage vertical from the necking, show classic origins. Some of them are given in Pugin, but not this one, here specially illustrated.

As admittedly the earliest part of the church, and that most certainly due to Queen Matilda, this crypt is of exceptional interest, apart from its fine architectural character.

DONNINGTON HURST.

THIS house, which is now being built, is situated one and a half miles from Newbury on rising ground between two woods, commanding a beautiful range of country. Owing to its position on a sloping site, special care has been taken in laying out the gardens and terraces on different levels.

The house is built of local red bricks, some portions towards the gardens being covered with rough-cast with stamped patterns around the windows, and as shown on the drawing. Both in the plan and treatment of the house simplicity has been kept in view, avoiding all unnecessary ornament as much as possible. The hall is panelled, and the whole of the ground floor ceilings, together with the chimney-piece in the parlour, will have some portions modelled in plaster by Mr. George P. Bankart.

The builder is Mr. A. H. Houghton, of Donnington, and the architects are Messrs. E. Guy Dawber & Whitwell, of London.

THE BANK, AND OLD LONDON BRIDGE.

THESE two plates are inserted as illustrations to Mr. Andrew Oliver's paper at the Architectural Association on "Old Streets and Buildings of London," reported in another column.

The view of the Old Bank of England is from an engraving dated 1781. That of a portion of London Bridge is from a plate stated to have been engraved after a drawing made in 1831.

APPOINTMENT.—Mr. Ernest S. Gale, of Falcon-court, Fleet-street, E.C., has been appointed by the Benchers Surveyor to the Honourable Society of Grays' Inn.

THE GLEN HALLS, NEILSTON, RENFREW.—The Glen Halls, Neilston, the gift of Mrs. Glen, were opened on the 7th inst. The architect was Mr. John B. Wilson, Glasgow, and the work was executed under his directions by the following contractors:—Mason, Mr. Hugh Houston; wrights, Messrs. Bell & Duguid; slater, Mr. W. Patrick; plumbers, Messrs. Lochrie & Neilson; plasterer, Mr. Wm. Graydon; painter, Mr. John Miller—all of Barrhead; glaziers, Messrs. W. Meikle & Sons; carving, Mr. W. Vickers; seating, The Bennett Company; gasfittings, Messrs. Milne & Son; furniture, Messrs. Bryce & Son—all of Glasgow; heating, Messrs. Boyd & Sons, Paisley; and wrought-iron work, Messrs. Singer & Sons, Somerset. Mr. John Young was the clerk of works.

HENDON PUBLIC OFFICES COMPETITION.

THE Urban District Council of Hendon invited eight architects to submit designs for the erection of new Public Offices, on which they propose to spend 12,000*l.* The site at the disposal of the Council allows for the eventual erection of a public hall, public library, and technical institute, and also for public baths and a fire brigade station—the Public Offices now to be erected to form the central feature of the group, the competitors to show the arrangement for the future extensions on their block plan. Three premiums are offered by the Council—75*l.*, 50*l.*, and 25*l.* Their professional assessor is Mr. Beresford Pite, and it is understood that he has made his awards, which are not yet made public. The designs are now on view at the Borough offices: that numbered 4 seems to fulfil the conditions and to utilise the site to its best advantage in the arrangement of the present and proposed blocks of building. The plan is symmetrical in block and well arranged in detail with regard to the various offices. A loggia centres the interest of the plan about the principal entrance; opposite the entrance, in a well-lit hall, is the principal staircase, on either side of which is a short corridor—to the right for the Engineers' department, to the left Collector's office and Medical Officer's offices, who has also a subsidiary entrance of his own. Upstairs is a fine Council Chamber, square on plan, in the centre of the building, and over the loggia—the Council offices and lavatory to the left, and Clerks' offices on the right. The elevations are well-proportioned designs in brick and stone. The Ionic order is used to the projecting façade of the loggia and Council Chamber over, running the full height of the building, crowned by a stone cornice that surmounts the building. It is a restful design, with some pretty detail; the only fault in it is the slight projection from the main front of the offices at either end of the building, causing an unpleasant leak to the otherwise nice line of the roof, and creating a difficulty in roofing the different width of projection in the rear. Altogether this design is well arranged, and would make an excellent nucleus to the more complete scheme. The next design in order of merit is No. 6, which in many ways is excellent, following closely the arrangement of No. 4. The elevations have too large an expanse of window though individually they are well proportioned, the lines of the roof are restless and jumpy. No. 2 may possibly claim the third place. The plan shows corridors too long and too narrow; the elevations are compact and well balanced, though poor in detail.

COMPETITIONS.

CRYSTAL PALACE BAND STAND COMPETITION.—Although the directors consider that no design received has realised the object which they had in view when initiating the competition, they have nevertheless, acting on the advice of the President and their assessor, decided to award the premiums offered in the advertisement inviting competitive designs for the new band stand. It is not likely that any of the designs received will be executed. The premiums have been awarded as follows:—First premium (thirty guineas), Messrs. Walter McFarlane & Co., Glasgow; second premium (fifteen guineas), Mr. Henry C. Eyres, Millfield Cottage, Millfield-lane, Highgate; third premium (seven guineas), Mr. G. M. Ellwood, 55, Alexandra-road, Upper Holloway.

HOSPITAL, WHARFEDALE, YORKSHIRE.—The Wharfedale Union Joint Hospital Board met at Otley on the 12th inst., to decide upon the competitive plans of a proposed infectious diseases hospital for the Union. There were twenty-six competitors, and Mr. E. J. Silcock, C.E., of Leeds, was appointed assessor. He recommended the plans signed "Anti-Microbe," which were those of Messrs. Blackwell & Thomson, of Leicester, and they were adopted. The buildings are estimated to cost 12,940*l.*

BRANCH LIBRARY IN LEEDS.—At a meeting of the Library Committee of the Leeds Corporation on the 14th inst., the premiums were awarded for the best designs for a branch library at Stock's Hill, Armley. The first award of 20*l.* was given to Mr. Percy Robinson, Albion-street, Leeds, and the second (one of 10*l.*) was awarded to Messrs. Bedford & Kitson, architects, Leeds. The estimated cost of the building is about 5,000*l.*

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring Gardens, Lord Welby, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee, it was agreed to lend the Bermondsey Vestry 16,500*l.*, for the purchase of land as a site for an electricity station and a dust destructor; the Fulham Vestry 17,830*l.*, for various purposes; the Hackney Vestry 30,000*l.*, for electric lighting installation; the Lambeth Vestry 3,760*l.*, for paving works; the Mile End Old Town Vestry 2,935*l.*, for paving works; the Poplar District Board 13,605*l.*, for the erection of buildings for electricity station; the Stoke Newington Vestry 1,700*l.*, for street-improvement works; the Whitechapel District Board 20,000*l.*, for electric lighting purposes; the Shoreditch Vestry 3,750*l.*, for the erection of workshops; the Hampstead Vestry 1,200*l.*, for site for library; and the St. Pancras Vestry 3,330*l.*, for extension of baths.

Works Department.—The same Committee brought up the half-yearly return of works executed by the Works Department. The return relates to estimated and jobbing works completed during the half-year ended September 30. During that period fourteen estimated works were completed and certified. The cost of these works is certified at 23,376*l.* Only three of them show an unfavourable result, and in only one case, that of the erection of Wargrave Buildings on the Boundary-street area, can the excess cost be regarded as serious. In eleven cases the works have been executed at a total saving on the estimates of 1,713*l.* The net result, however, owing mainly to the excess on Wargrave Buildings, is that the saving on final estimates for the half-year is 587*l.* At the end of the return is a statement showing the totals of the actual cost and of the final estimates of all works executed by the department since its creation in November, 1892. From this it appears that works estimated to cost 838,642*l.* have actually cost 883,232*l.*, thus showing a loss of 44,590*l.* The loss shown during the existence of the Works Committee, and previous to the reorganisation of the department as the result of the special inquiry, was 54,954*l.*, but since then there has been a saving of 10,364*l.* On the jobbing works, which have been carried out since 1895, when the schedule of prices came into operation, there has been a total balance of cost below schedule value, or a saving of 8,624*l.* Consideration of the return was adjourned until after the recess.

Rutty's House.—On the reception of the report of the General Purposes Committee, Mr. Benn asked the chairman whether the sub-committee which had in hand the preparation of an illustrated description of the buildings of historic interest in London had devoted several pages to the Old Tudor House in Bromley recreation ground, which it had been decided to clear away; and, if so, whether it was the intention of the sub-committee to mention the names of the members of the public body responsible for the demolition.

Mr. Strong, Chairman of the General Purposes Committee, said he had had no intimation of what the sub-committee intended to do.

Mr. Benn asked if the Committee had taken steps to rescue from the hands of the Parks Committee those portions of the house which were generally acknowledged to be worth saving.

Colonel Rotton, Chairman of the Parks Committee, said instructions had been given for the preservation of those parts of the building which were worth preserving.

Electrical Traction for Tramways. — The Highways Committee reported, and it was agreed:—

"That the sanction of the Council be given to the plans and particulars submitted by the London United Tramways Company, under the provisions of its Act of 1899, and the agreement with the Council scheduled thereto—(*a*) for the overhead, or trolley, system of electrical traction to be adopted for the Company's tramways in the Uxbridge-road between the 'Askew Arms' public-house and the Uxbridge-road railway station, and in Uxbridge-road and Goldhawke-road between the railway station and Young's Corner; such sanction being, however, given without prejudice to any action which the Council may decide to take with regard to the proposal of the Company for the amendment of the provisions of its Act of 1899 with regard to the equipment for an underground system of electrical traction of its lines between Young's-corner and Hammersmith-broadway, and in Beadon-road, Glenthorne-road, and Studland-road and part of The Grove; and, moreover, subject to the following conditions—that the trolley-wires be not attached to the electric-lighting standards of the Vestry of Hammersmith; that the Company do furnish to the vestry detailed drawings of the inspection chambers and boxes proposed to be placed in the carriageways or footways; that the 'Bristol' designs for the side and centre traction-posts be used; but the cut-out circuits be of such lengths as shall be approved by the Council's Chief Engineer."

Spitalfields Market.—On the recommendation of the Public Control Committee it was carried on a division by 83 to 15: "That the Council do enter into a provisional agreement with the freeholders for the purchase, subject to Parliamentary power being obtained, of the freehold and market rights in and in connexion with Spitalfields Market, at a sum not exceeding 177,500*l.*, to include all costs and fees in respect of negotiations and the cost of deducing title."

Letting Land, Rosebery-avenue.—The Corporate Property Committee recommended, and it was agreed, after discussion, that, subject to the terms of an agreement to be prepared by the solicitor and the usual inquiries proving satisfactory, the Council do let to Mr. J. Milroy, upon lease for 80 years, lots 39 and 40, Rosebery-avenue, at a ground rent of 50*l.* per annum.

Rotherhithe Fire Station.—The Fire Brigade Committee recommended

"(*a*) That the estimate of 600*l.* submitted by the Finance Committee in respect of part of the cost of enlarging the Rotherhithe station be approved.

(*b*) That the tender of Mr. B. E. Nightingale to execute for 728*l.* the work of partially enlarging and altering the Rotherhithe station be accepted; that he be allowed to sub-let the following work:—(*a*) Digging and carting; (*b*) tiling and slating; (*c*) granolithic flooring or plastering; (*d*) asphalting; (*e*) wood-block flooring; and (*f*) relaying granite setts. . . . ."

Mr. Jeffery moved, and Mr. Dew seconded, to refer the matter back. In the interests of labour and the good name of the Council sub-letting should not be permitted.

Mr. Howell Williams said that the work must be done by specialists and therefore must be sub-let.

The amendment having been lost, the recommendations were passed.

Redcross-street Fire Station.—The same Committee recommended that the estimate of 13,935*l.* submitted by the Finance Committee in respect of the new fire-station to be erected in Redcross-street be approved; that the Council do sanction an expenditure of 12,689*l.* for the work of erecting the station; that the work be executed by the Council without the intervention of a contractor; and that the drawings and specification be referred to the Manager of Works for that purpose.

Mr. Westacott moved, and Mr. Cousins seconded, to omit all words after "erecting the station," and to add, "and that tenders be invited for the work."

On a division the amendment was defeated by 55 to 45, and the recommendation of the Committee was agreed to.

Housing.—Counsel having advised that the Council has no power to acquire land outside the county of London for housing schemes, the Housing of the Working Classes Committee recommended—

"(a) That it is desirable that an amendment of the Housing of the Working Classes Act, 1890, should be obtained, so as to empower the Council to acquire land outside the county of London for the erection of working-class dwellings.

(b) That the Committee be authorised to appoint a deputation to wait upon the Secretary of State for the purpose of urging him to introduce a Bill for the amendment of the Housing of the Working Classes Act, 1890, so as to empower the Council to acquire land outside the county of London for the erection of working-class dwellings."

Mr. Beachcroft moved to add to the first paragraph "and to lease such land if and when desired for the purpose of such erection." The Council's hands were now very full with building operations involving the housing of 16,000 persons, and there must be some limit to its operations in the interests of private enterprise in the building line.

Mr. Harris seconded the amendment, which was defeated by fifty-six votes to fifty.

Lord Alexander Thynne then moved to add the words:—

"And that it be referred to the Committee to consider and report whether the special provisions of the Act as to the compensation payable in respect

of property taken within unhealthy areas can be equitably amended so as to reduce the heavy cost of clearance schemes to the ratepayers."

This was seconded by Mr. Whitmore, M.P., and accepted.

On the motion of Mr. Taylor, seconded by Mr. Burns, M.P., it was also agreed to add the words "and to compel the owners of insanitary property to bear the whole cost of rehousing all persons displaced from such areas."

The recommendation as amended was then adopted.

It was also agreed

"that the Council do retain the land comprised in the Churchway, St. Pancras, scheme, lying to the east of Churchway, and that application be made to the Secretary of State for permission, under Section 12 (3) and (5) of the Housing of the Working Classes Act, 1890, for the Council itself to erect the dwellings required to be provided under the scheme.

That the Housing of the Working Classes Committee be authorised to invite tenders for the erection of Reynold's-buildings (two blocks), Milbank estate, such tenders to be based on the understanding that the contractor whose tender is accepted will undertake the erection of the remaining eight blocks at the same prices as those upon which the tender for Reynold's-buildings is based."

Foundations, &c, Lots-road Pumping-station.—The Main Drainage Committee recommended, and it was agreed—(*a*) That the Council's resolution of August 1, 1899, directing the execution of certain works at Lots-road pumping-station at an estimated cost of 1,500*l.* be not further acted upon. (*b*) That an expenditure of 4,950*l.* be sanctioned for altering the Counter's-creek sewer and putting in foundations under part of the new engine-house at the Lots-road pumping-station, in accordance with the plans presented to the Main Drainage Committee on November 2, 1899; that the work be carried out by the Council without the intervention of a contractor; and that the plans, specification, and estimate of 4,950*l.* be accordingly referred to the manager of works for that purpose.

Sanitary Condition of Kensington.—The Public Health Committee stated that Dr. Hamer had reported very unfavourably of certain portions of Kensington. He referred to the opinion very commonly held among deputies and others interested in property of the furnished room class that, having regard to the habits of the people for whom such rooms provided shelter, it was useless to attempt to maintain cleanliness, and, while pointing out that much remained to be done in certain parts of Kensington in the way of promoting habits of personal cleanliness, the condition of rooms such as those found in large numbers in Kensington could by no means be excused on the ground of the uncleanly habits of the occupants. In his opinion the want of proper supervision and the neglect to enforce the by-laws regulating houses let in lodgings were the factors mainly responsible for the continued existence of these conditions. Some discussion ensued on this, which involved the appointment of more inspectors, and reference was made to a similar state of things in St. Pancras. The Committee's view that something must be done in the way of better inspection was accepted.

Theatres, &c.—The Theatres and Music Halls Committee reported that plans had been approved in regard to the following premises, subject to certain conditions:—Camberwell Palace of Varieties, plan showing proposed pay-holes for early doors; New Theatre, Camden Town, plan showing a slight alteration to the balcony staircase; Wyndham's Theatre, plan showing mode of forming the concrete steppings at the back of the dress circle.

It was agreed, so far as the Council's regulations under Section 12 of the Metropolis Management and Building Acts Amendment Act, 1878, are concerned, and in most cases subject to certain conditions:—

"That Mr. Wilkins be informed that the Council has no objection to the arrangements shown on the four plans, dated November 11, 1899, submitted by him in regard to the Battersea Town Hall.

That Mr. Woodrow be informed that the Council has no objection to the arrangements shown on the plan, dated November 14, 1899, submitted by him in regard to the Camberwell Palace of Varieties.

That Messrs. Runtz be informed that the Council has no objection to the arrangements shown on the plan, dated November 17, 1899, submitted by them in regard to the Crown Theatre, Peckham.

That Messrs. Handcock & Dykes be informed that the Council has no objection to the arrangements shown on the diagram, dated November 13, 1899, submitted by them in regard to the Granville Theatre of Varieties.

That Mr. A. W. J. Russell be informed that the Council has no objection to the arrangements shown on the two plans, dated November 16, 1899, submitted by him in regard to the Paddington Public Baths.

That Mr. W. G. R. Sprague be informed that the Council has no objection to the arrangements shown on the plan dated November 29, 1899, submitted by him in regard to the Princess of Wales Theatre, Kennington.

That Mr. Venner be informed that the Council has no objection to the arrangements shown on the two plans, dated October 27, 1899, submitted by him in regard to the Royal Agricultural Hall.

That Mr. J. W. Wilkinson be informed that the Council has no objection to the arrangements shown on the two plans, dated November 16, 1899, submitted by him in regard to the Royal Aquarium.

That Mr. B. Crewe be informed that the Council has no objection to the arrangements shown on the plan dated December 4, 1899, submitted by him in regard to the Standard Theatre.

That Mr. W. G. R. Sprague be informed that the Council has no objection to the arrangements shown on the plan, dated November 6, 1899, submitted by him in regard to the Shakespeare Theatre.

That Mr. Sprague be informed that the Committee has no objection to the arrangements shown on the plan, dated November 8, 1899, submitted by him in regard to Terriss' Theatre."

Horton Estate.—The Asylums Committee recommended, and it was agreed—

"(*a*) That the estimate submitted by the Finance Committee for an expenditure of 3,850*l.* in connexion with the sinking of a well on the Horton estate be approved.

(*b*) That the estimate submitted by the Finance Committee for an expenditure of 850*l.* for preparing schemes for the provision of a central station for the supply of water and electricity on the Horton estate be approved."

Fire Brigade Expenditure.—The Joint Committee on Fire Brigade expenditure recommended and it was agreed:—

"That the Joint Committee on Fire Brigade expenditure be authorised to address to the municipal authorities of the principal cities and towns in Great Britain and Ireland a letter intimating that the Council, being of opinion that the rate of contribution of the fire insurance companies towards the expenses of maintaining the Metropolitan Fire Brigade should be increased, desires to have an expression of the opinion of such municipal authorities on the general question as to the extent to which fire insurance companies should contribute towards the expense of maintaining fire brigades."

Work for the Works Department.—It was agreed

"That the work of permanently paving the western portion of Calvin-street on the Boundary-street area be executed by the Council without the intervention of a contractor, and that the plan, specification, quantities, and estimate of 1,230*l.* be referred to the manager of works for that purpose.

That the working drawings, specification, and estimate of the cost (2,630*l.*) of the paving and other works in connexion with the widening of Tottenham Court-road at Bozier's-court be referred to the manager of the Works department, with a view to the work being carried out without the intervention of a contractor."

The Council adjourned at 8.30 p.m. for the Christmas recess.

METROPOLITAN ASYLUMS BOARD.

THE fortnightly meeting of the Managers of the Metropolitan Asylums District was held at the County Hall, Spring Gardens, on Saturday last, Sir Edwin Galsworthy presiding.

Local Government Board.—The Local Government Board wrote authorising the construction of groynes and other works to protect the sea front of the Managers' property at Rustington, at a cost of 400*l.*; and in regard to the projected Southern Hospital, assenting to the proposal to construct one-story cottages, as persistently advocated by the Managers during the consideration of the scheme.

High Wood School.—The Works Committee reported that they had sent to the Local Government Board an estimate of the cost of this school, amounting to 123,120*l.* The cost of the structure was put at 83,067*l.*; drainage 4,133*l.*; fixtures and engineering works 8,200*l.*; water, gas, baths, &c., 3,540*l.*; fencing 1,370*l.*; and road-making, &c., 2,490*l.*; other charges bringing the cost to the sum above stated.

Leavesden Asylum.—It was decided, subject to the consent of the Local Government Board, to advertise for tenders for the construction of small sanitary annexes to nine of the blocks at this asylum, at an estimated cost of 1,350*l.*

Carpenters' Wages.—On the recommendation of the Hospitals Committee it was agreed that the wages of carpenters at the hospitals should be raised from 25s. a week with board, to 36s. without board, and that the hours should be shortened in winter by stopping at five o'clock instead of six. The change had already been made in the case of the asylums.

APPLICATIONS UNDER THE LONDON BUILDING ACT, 1894.

AT the meeting of the London County Council on Tuesday, the following applications under the London Building Act were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated.

Lines of Frontage and Projections.

Kensington, South.—A block of residential flats, with bay-windows, on the east side of Allen-street, Kensington, at the corner of Abingdon Villas (Messrs. Palgrave & Co. for Mr. W. J. Blow).—Consent.

Deptford.—Extension of the periods within which the erection of a one-story shop upon part of the forecourt of No. 126, New Cross-road, Deptford, was required to be commenced and completed (Mr. W. Wood).—Consent.

Greenwich.—Two houses on the south side of Manor-way, Lee-road, Lee (Mr. L. V. Hunt).—Consent.

Lewisham.†—A one-story addition to a house on the north side of Hither-green-lane, Lewisham, to abut upon Springbank-road (Mr. A. J. Tucker).—Consent.

Lewisham.—Retention of bay windows to thirteen houses on the south side of Nuding-street and six houses on the west side of Overcliff-road, Lewisham (Mr. N. McDougall).—Consent.

Lewisham.†—A house on the east side of Overcliff-road, and a house on the west side of Sandrock-road, with the flanks of such houses to abut upon Nuding-street (Mr. N. McDougall).—Consent.

Marylebone, West.—An iron and glass covered way to No. 47, Hamilton-terrace, St. John's Wood (Mr. L. Solomon for Mr. H. J. Walford).—Consent.

Strand.—An addition to an iron and stone balcony on the north side of No. 33, St. James's-square, St. James's, to abut upon Charles-street (Messrs. Holland & Hannen for the Earl of Derby)—Consent.

Wandsworth.—Three shops on the south-east side of Streatham-hill, next the London, Brighton, and South Coast Railway (Mr. W. S. Payne for Mr. A. W. Gatfield).—Consent.

Chelsea.—A two-story addition at the rear of No. 43, Cadogan-street, Chelsea, to abut upon Halsey-street (Mr. J. Emes for Messrs. E. Kerrell & Company, Limited).—Refused.

Lewisham.†—Barge-boards to the gabled roof of a bay-window to No. 2, Crofton Park-road, Lewisham (Mr. T. H. Perry)—Refused.

Lewisham.—Four houses with shops on the west side of Hither Green-lane, Lewisham, next the site of a road proposed to be named Lanier-road (Mr. J. Stanford).—Refused.

Norwood.—One-story shops upon part of the forecourts of Nos. 142A, 142B, and 142C, Norwood-road, West Norwood, at the corner of York-road (Mr. J. H. Carte for Mr. C. E. Tranter-Lamb).—Refused.

Wandsworth (detached)† — Private houses and houses with shops on the west side of Croxted-road, Dulwich (Mr. C. M. Quilter for Mr. S. Admans).—Refused.

Width of Way.

Camberwell, North.—Request by Mr. E. J. Strevens for Mr. J. F. Thompson for permission to retain the forecourt fence in front of Thompson's Mansions, Avenue-road, Camberwell, at less than the prescribed distance from the centre of that street.—Consent.

Rotherhithe.—A building at Chamber's Wharf, No. 105, Rotherhithe-street, Rotherhithe (Mr. G. A. Lansdown for the Star Omnibus Company, London, Limited).—Consent.

Islington, South.—Retention of an addition at the rear of No. 16A, Barnsbury-road, Islington, at less than the prescribed distance from the centre of Denmark-road (Mr. W. H. Fisher for Mr. T. R. Clarke).—Consent.

Lambeth, North.—A warehouse on the site of No. 84A, Cornwall-road, Lambeth, at the corner of Secker-street (Mr. W. H. Lees for Messrs. H. Sandell & Sons).—Consent.

Rotherhithe.—A building on the west side of Vine-street, Tooley-street, Rotherhithe (Messrs. Hesketh & Stokes for Messrs. Wigan, Richardson, & Co.)—Consent.

Southwark West.—A warehouse on the east side of Gravel-lane, Southwark, at the corner of Lavington-street, at less than the prescribed distance from the centre of Gravel-lane (Messrs. F. Chambers & Son for Mr. F. J. Chambers).—Consent.

Southwark West.—A building in the yard on the

eastern side of Belvedere-buildings, Southwark Bridge-road, Southwark (Mr. T. G. Thomas for Messrs. R. & H. Jenner & Sons).—Consent.

Space at Rear.

Wandsworth.—A modification of the provisions of Section 41 (1) (vi.) of the London Building Act, 1894, with regard to open spaces about buildings, so far as relates to the proposed erection of three houses with shops on the north side of Longley-road, Tooting, with irregular spaces at the rear (Mr. H. Heath for Mr. A. S. Potter).—Consent.

Wandsworth.—A modification of the provisions of Section 41 (1) (vi.) of the London Building Act, 1894, with regard to open spaces about buildings, so far as relates to the proposed erection of a one-story stable in a yard at the north-west angle of Ruvigny Gardens, Lower Richmond-road, Putney, with an irregular space about such stable (Mr. A. E. Chasemore for Mr. A. King).—Consent.

Deviation from Certified Plans.

Greenwich.—Certain deviations from the plans certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed rebuilding of the "Anchor and Hope" public-house, Riverside, Charlton, and the construction of wooden balustrades to a balcony and flat roof at such premises (Messrs. Perry & Reed for Messrs. Hoare & Co., Limited).—Consent.

St. George, Hanover-square.—Deviations from the plan certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed rebuilding of the "Coach and Horses" public-house, No. 16, Conduit-street, St. George, Hanover-square (Messrs. Gardiner & Theobald for Mr. H. A. Lloyd).—Consent.

Strand.—Certain deviations from the plans certified by the District Surveyor, under Section 43 of the Act, so far as relates to the proposed rebuilding of No. 2, Coventry-street, St. James's (Messrs. H. Cooper & Sons for Messrs. Amber & Co.—Refused.

Lines of Frontage and Width of Way.

Chelsea.—A one-story shop on part of the forecourt of No. 118, King's-road, Chelsea, to abut upon Keppel-street (Mr. J. Emes for Mr. C. Grant and Mr. H. Bloomberg).—Refused.

Westminster.—A drill-hall and headquarters on the west side of Regency-street, Westminster, to abut also upon Chapter-street and Frederick-street (Mr. W. C. Waymouth for the Electrical Engineer Volunteer Corps).—Refused.

Line of Frontage, Width of Way, and Space at Rear.

Walworth.—That the application of Messrs. Spalding & Spalding for an extension of the period within which the erection of a building, to be used as a working men's club, on the east side of Walworth-road, Walworth, at the corner of York-street, was required to be commenced, be granted.—Agreed.

Width of Way and Projections.

Limehouse.—Three iron and concrete balconies in front of Nos. 65 to 69, Wapping-wall, Limehouse (Messrs. Anderson, Weber, and Smith).—Consent.

City of London.—Three porticos in front of a building in course of erection on the west side of Bouverie-street, Fleet-street, City (Mr. M. E. Collins for Messrs. G. Trollope & Sons).—Refused.

Lines of Frontage and Construction.

Strand.—An iron and glass shelter in front of the St. James's Theatre, King-street, St. James's, and also an iron shelter in Angel-court, at the side of such theatre (Mr. A. B. Jackson for Mr. G. Alexander).—Consent.

Lewisham.—A lych-gate at the entrance to the yard of St. Bartholomew's Church, West Hill, Sydenham (Mr. H. Currey for the Mayow W. Adams Memorial Committee).—Consent.

Rotherhithe.—Two iron and concrete gangways across Rotherhithe-street, Rotherhithe, to connect, at the first and second-floor levels, warehouses at Chamber's Wharf, on each side of that street (Mr. G. A. Lansdown for the Star Omnibus Company, London, Limited).—Consent.

Formation of Streets.

Woolwich.—That an order be issued to Mr. G. F. Logsdail sanctioning the formation or laying out of four new streets for carriage traffic out of the south side of Southwood-road, New Eltham, and the widening of a portion of Southwood-road (for Mr. G. F. Jones). That the names Cadwallon-road, Gerda-road, Thaxted-street, and Rushbrook-street be approved for the new streets.—Agreed.

Woolwich.—That an order be issued to Mr. G. F. Logsdail sanctioning the formation or laying out of a new street for carriage traffic in continuation of Hainault-street, Footscray-road, New Eltham (Mr. A. Stubbs).—That the name Hainault-street (in continuation) be approved for the new street.—Agreed.

Means of Escape from Top of High Buildings.

Strand.—That Messrs. White & Co. be informed that the Council has considered the plan showing the means of escape in case of fire, proposed to be provided in pursuance of Section 63 of the London Building Act, 1894, on the sixth and seventh stories of a building proposed to be erected on the site of Nos. 173 to 179, Strand, and 2, Norfolk-street, for the persons dwelling or employed therein, and that . . . the Council will issue a certificate under the said section. . . .—Agreed.

Buildings for the Supply of Electricity.

Southwark, West.—An extension of the generating station and works on the north side of Sumner-street, Southwark (Mr. F. Bailey for the City of London Electric Lighting Company, Limited).—Consent.

Cubical Extent.

Fulham.—An additional story to a factory on the west side of Munster-road, Fulham, at the rear of houses on the north side of Danehurst-street, such factory and additional story together to exceed in extent 250,000 but not 450,000 cubic feet, and to be used only for the purposes of the trade of mineral-water manufacturers (Messrs. F. Chambers & Son for Messrs. Batey & Co., Limited).—Refused.

Dwelling Houses on Low-lying Land.

Greenwich.—Four dwelling-houses with shops on low-lying land known as plots 14, 15, 16, and 17, in Trafalgar-road, Greenwich (Mr. A. Roberts for Mr. C. H. Newman).—Consent.

The recommendations marked † are contrary to the views of the Local Authorities.

Correspondence.

To the Editor of THE BUILDER.

THE ROYAL ACADEMY STUDENTS' DESIGNS FOR A SCHOOL.

SIR,—The able and instructive remarks of your critic on the comparative merits of the designs sent in for the R.A. Gold Medal lead one to suppose that he has not had access to the conditions laid down for the competition.

He passes some strictures on the planning of the unsuccessful competition designs which are due to the conditions and not to the competitors.

I inclose a copy of the conditions, from which you will see the students were restricted with regard to planning to a chapel with anti-chapel and gallery, six or seven class-rooms, three or four masters' rooms, and a big schoolroom with a gallery, all of specified dimensions.

A formal garden also was required, which integral part of the competition has received no notice from your critic.

The extremely limited nature of the conditions led the students to compile a short list of questions, which were forwarded to the proper quarter through the masters of the school. Amongst others, the following question was asked: "Is it permitted to indicate the position of lavatories, laboratories, gymnasium, and other accommodation necessary to a school building?"

The uncompromising reply was "abide by the conditions; any other accommodation is provided elsewhere."

Surely it is a hardship to censure the unsuccessful competitors for the omission of accommodation "for practical purposes" which they were expressly forbidden to include much against their wishes.

Is it not most unfortunate for the students that obedience to instructions should be so discouraged, both by judges and critics?

E. BAYNES BADCOCK, B.A.
Late of Trin. Coll. Cam., Univ. Engineering Dept.

*** If we had been aware that the formal garden was in the "Instructions," we should certainly have given some attention to its treatment, in the brief space we could spare for reviewing the designs. In regard to another remark in our correspondent's letter we may point out that we did not "censure" the authors of the designs for any of the omissions referred to; we only called attention to mistakes obvious on the plans; for instance, lighting a class-room from the end instead of the side. If the "Instructions," as it appears, omitted all mention of lavatories and latrines, we think they were imperfectly considered, as the position and planning of such adjuncts is of the greatest importance in a school.—ED.

FIRE STATION, EDGWARE-ROAD.—Mr. William Urquhart, L.C.C., laid the foundation-stone on the 9th inst. of a new fire station at Edgware-road, in the Maida Hill district. The accommodation to be provided will be:—On the ground floor, the engine-room for one steamer, one horse fire-escape, and one hose-cart, while one additional escape will be kept in the yard; watch-room, recreation-room, and stable for four horses. On the upper floors will be the tenements for occupation by one station officer, nine married firemen, and two coachmen; and in the basement will be arranged the workshop, coal stores, stoking apparatus, and other accessories. The building, which will be lighted by electricity, will be erected by the Works Department of the London County Council at an estimated cost of 13,210*l.*, in addition to 98*l.* for stoves. It is expected that the building will be ready for occupation in August, 1900.

The Student's Column.

ROADS: THEIR CONSTRUCTION AND MAINTENANCE.

PART IV.—MAINTENANCE (*continued*).

26. COST.

UP to the present no mention has been made in these articles of the actual details of cost, which must of necessity be a most important consideration in all questions of road construction or repair, and which deters many road authorities from undertaking the extensive improvements of which many roads stand so much in need. If judged by its relative importance, indeed, the question of cost should occupy the first place instead of being the last to be discussed. But this course has been deliberately taken in the preparation of these chapters, for the reason that when the relative advantages and disadvantages of different methods have been pointed out, a comparison of their cost will be more intelligible than if these details are scattered promiscuously throughout the separate portions of the series. With respect to prices, also, a word of caution is necessary. The reader must be prepared to find great differences in cost in different localities and at different times. Both the price of materials and the condition of the labour market vary within wide limits, not only in different countries, but also in different parts of the same country. Fluctuations in price are always taking place, and statistics of cost are in continual danger of being out of date. But, provided that these statistics are taken as having rather a relative than an absolute value, much useful information may be derived from a careful study of the way in which the large sums laid out on our modern roads are expended.

Of necessity, a large part of the accompanying details has been gathered from the collected experiences of road surveyors in different parts of the kingdom, and the first point which will strike the reader will probably be the great differences in the cost of road maintenance in different counties. Every surveyor is probably aiming at the best solution of the problem involved in trying to keep his roads in good order at the smallest possible cost.

No true comparisons can, however, be drawn without knowing at the same time the nature of the road and of the traffic upon it. The width of the road is also an important point, as well as the local cost of labour and materials. Heavy traffic over a wide, level road would not require such expensive treatment as the same weight of traffic on a narrow road with steep gradients. This difficulty of comparison cannot, unfortunately, be met by taking averages over long periods of time. Conditions of travel vary so much with the march of time that the average of past expenditure is very little guide to future requirements. Variations in seasons, as well as in traffic, causes great differences in the wear and tear of roads. Periods of abnormal rainfall, frosts and snow, and other meteoric agencies all impress their mark upon the bill of costs for road maintenance, if this maintenance is efficiently carried out. Thus, the snows of the years 1881 and 1891 added about £500 to the cost of maintenance in Hants. Even within the limits of individual counties requirements vary within wide limits. Agricultural districts and colliery districts require very different expenditure. In every county there are many miles of road which do not cost but a fraction of the average expenditure per mile of the whole county. Then, again, districts grow and requirements increase with the demands of extra traffic. Cost is also largely influenced by control. Uniformity of management contributes more than anything else to economy—a fact which is abundantly illustrated in the present system in which the main roads are maintained by the County Councils and the parish roads by the District Councils, causing a considerable amount of conflict in urban districts and elsewhere where the two authorities overlap.

Again, our whole system of road management is undergoing a rapid and complete revolution. The tendency of the present day is to attempt to repair the errors of the past, and to bring all our roads up to an efficient standard. This process must necessarily involve a temporary increase in cost; but it is probable that, in the majority of cases, when once the required standard has been reached, there will be again a substantial reduction in the annual

expense of maintenance, since a good road will always be more economical than a bad one.

This point has been plainly illustrated in a recent paper by Mr. E. P. Hooley,* in which a saving in maintenance was shown to have been effected by starving the roads, until the mischief resulting from this policy became so pronounced that drastic measures were needed to remedy them. The result was that the cost went up at a bound from 38*l.* to 230*l.* per mile.

Before entering upon the minuter details of the cost of various kinds of road it will be interesting to examine a few typical examples illustrating the annual cost of maintaining the macadamised and other roadways of this country.

In England the annual cost per mile per annum of urban roads has been calculated at 140*l.*, that of rural roads at 56*l.*, and that of lanes and by-roads at 28*l.* Other authorities have worked out the average cost of English main roads at 100*l.* per mile. In Ireland the total annual cost amounts to about 700,000*l.* per annum for 51,000 miles of road; which gives an average of only 13*l.* 14s. per mile.

If we consider the county expenditure only we find the following results in typical cases :—

	Mileage.	Cost per mile. £ s. d.
Hampshire (Rural)	487	19 3 9
„ (Urban)	39	92 11 3
Nottingham (Highway Boards)	120	43 14 0
„ (Urban)	54	75 18 0
„ (Parish)	146	43 7 6
Mid Lothian	555	44 0 0
Armagh	1,613	12 14 9
Kent (main roads)	138	407 0 0

These figures are merely given to show how delusive are the results of any calculations of the costs of roads over a wide area of country.

More instructive are the following figures, given by Mr. O. C. Hobson, as the cost of roads and road materials in certain districts :—

These figures, however, do not afford very precise information, being merely derived from the total annual expenditure in each case. Thus some of the Mid-Lothian roads on which traffic is excessive cost more than 200*l.* per mile, and one—the Musselburgh-road—as much as 450*l.* per mile per annum, although the average cost of all the roads was only 44*l.* per mile.

County.	District.	Cost per Mile £	Cost of Materials.
Kent	Dartford	58	3/6 and 7/6 per c. yd.
„	Ashford	70	2/10 „ 14/- „ „
„	Sevenoaks	70	5/2 „ 5/6 „ „
„	Gravesend	95	4/3 „ 12/9 „ ton
„	Gillingham	100	4/- „ c. yd.
„	Maidstone	140	4/7 „ 4/9 „ „
„	Beckenham	200	5/6 „ 8/- „ „
Surrey	Reigate	109	13/6 per ton.
„	Richmond	220	8/3 and 14/6 per c. yd.
Yorkshire	Goole	70	8/- „ 11/- per ton.
Lancashire	Widnes	70	7/6 „ „
Middlesex	Hendon	85	7/7 „ 10/3 „ „
Warwick	Aston Manor	89	6/8 „ „
Guernsey	—	33	3/6 „ 7/3 per c. yd.

Where traffic is considerable the width of roads has such an important influence upon cost that it is better to compare the cost per yard superficial rather than the cost per mile. Thus in Brighton, where the roads are exclusively macadam, the cost, in the busiest part, reaches 2s. 6d. per yard for maintenance, and averages 1s. 7½d. for all the roads. In Norwich the macadam roads cost about 1s. 7d. per yard, but the tarmacadam only 9d., the difference being chiefly due to economy in cleansing. In Liverpool the average cost of the macadam streets for maintenance works out to nearly 1s. 7d. per yard.

In London the macadamised roadway at Charing Cross, now replaced by pavement, cost as much as 5s. per square yard for maintenance, while Parliament-street cost 3s. 6d. and Regent-street 3s. 7d.; but the highest cost of all is found in Paris, where 22 per cent. of the roads are macadamised, and the annual cost of maintenance on roads of the first class reaches 10s. 9d. per square yard.

Examples might be multiplied indefinitely, but the above will be enough to give a general idea of the limits between which the cost of maintaining macadamised roads may be expected to vary.

We will now examine in fuller detail how this cost is to be apportioned between the different items which go to make the total, in connexion with which an actual example, taken from the Borough Surveyor's report of the cost of recoating Railway-street, Wolverhampton, may be useful. This was as follows :—

	£ s. d.
Stocking (*i.e.*, "lifting" the roadway) 12 days at 3s. 2d.	1 18 0
Stone.—158 tons at 5s. 9d.	45 8 6
Horse hire, 15 days at 8s.	6 0 0
Labour, 6¼ days at 3s. 8d.	1 2 11
Sand.—43 tons	3 18 6
Horse hire, 6½ days at 8s.	2 12 0
Labour, 6¼ days at 3s. 2d.	1 1 4
Water.—Horse hire, 3 days at 8s.	1 4 0
Steam Rolling.—3 days at 10s.	1 10 0
Driver, 3 days at 5s.	0 15 0
Flagman, 3 days at 3s. 4d.	0 10 0
Coke, oil, &c.	0 9 6
Total cost for 1,422 yards	£66 9 9
	=11.2d. per yard.

This cost of about 11d. per square yard is therefore approximately made up as follows :—

Stocking	½d.
Stone	8¼d.
Sand	1¼d.
Watering	¼d.
Rolling	½d.

It will be noticed that this is the cost incidental to remetalling only, and does not include cleansing and other details. To this must be added, therefore, the cost of supervision, which usually amounts to between 5 and 6 per cent. of the total expenditure, and the cost of sweeping, scraping, watering, and small repairs necessary to maintain the road in good condition.

Cost of Steam-rolling.—It is a difficult matter to lay down any fixed rules as to the cost of steam-rolling, since the quantity of work which can be done in a given time varies with the number of stoppages necessary and other uncertain factors. It is found that in Nottinghamshire an average of 30 tons of broken stone can be rolled in one day; but this quantity will vary with the weight of the roller, the quality of the stone, the thickness of the coating, and the area of the patches. Large patches are rolled more quickly than small ones, owing to the smaller number of stoppages necessary in the former case.

In comparing the estimates of cost of steam-rolling, also, different surveyors make up the total in various ways. Some include only the wages of the driver and the actual cost of working the roller, while others include the wages of the additional men required for spreading, binding, watering, and sweeping. The following may be taken as an average example of the cost of rolling 165,329 superficial yards of road, covered with 9,132 cubic yards of mountain limestone and chert :—

	£ s. d.
Engine-driver	63 6 6
Sweepers	78 6 4
Horse hire	124 9 0
Coal	54 9 0
Oil and sundries	32 9 0
Depreciation and repairs to roller, 20 per cent.	81 16 3
Total	434 16 1

This amount works out at 11.4d. per cubic yard of stone, or a little more than ½d. per superficial yard.

Cost of Broken Stone.—The following table gives the cost of some of the better-known igneous rocks, broken by machine; hand-broken stone being rather more expensive :—

Comparative Prices of Broken Stone, per ton (free on rail).

—	2½ in. to 2½ in.	2½ in. to 2 in.	1½ in. to 1½ in.	1¼ in. to 1 in.	Carriage to London (extra)
	s. d.	s. d.	s. d.	s. d.	s. d.
Mount Sorrel	—	4 9	5 3	—	6 3
Stoney Stanton	—	4 3	4 3	—	5 6
Enderby	—	5 0	5 0	—	5 6
Charnwood Forest	—	5 0	5 0	—	5 6
Bardon Hill	5 3	5 3	5 9	5 3	5 6
Penmaenmawr	—	4 0	4 4	—	8 6
Clee Hill	5 3	5 5	5 7	—	7 11
Rowley Rag	—	4 7	5 1	—	8 4
Penlee	—	6 0	6 3	—	5 0
Guernsey	6 4	6 10	7 4	—	4 0

Cost of Tar Macadam.—The cost of tar macadam as usually laid down for roadways varies somewhat with the amount of preparation of the ground that may be necessary. Where the foundation is already made, as in the case of old paved roads, the only preparation required is stripping and making good any weak places that may occur in the existing foundation; but when new ground is to be covered the cost of preparing a foundation may be considerable, and often adds as much as 30 per cent. to the total cost.

The actual cost of tar macadam as laid in Canterbury proved to be as follows :—

In the first place the materials required for making forty cubic yards of macadam amounted to 9s. 2d. per cubic yard, as shown by the accompanying items :—

	£ s. d.
45 cubic yards of pit gravel at 3s. 6d.	7 17 6
79 gallons of tar at 2½d. per gallon	16 5½
234 lb. of pitch at 46s. 8d. per ton	4 10½
84 bushels of coke at 9s. 4d. per chaldron	1 1 9½
30 bushels of breeze	8 0
Wages for preparing and mixing	7 18 7
Total cost of materials	18 7 2½

This mixture, costing 9s. 2d. per cubic yard, is laid to a thickness, when compressed, of about 4 in.; so that the cost of materials for coating one superficial yard will amount to 1s. 6d.

The cost of laying will include the following items :—

	s. d.	
Cost of mixture	1 6	per yard.
Stripping road, 8 in. thick	0 9	„
Broken brick ballasting	0 10	„
Applying tar macadam in three layers, and finishing	0 9	„
Rolling	0 3	„
Sundries, 10 per cent.	0 5	„
	4 6	„

The life of such a pavement being taken at seven years, and cost of annual repairs at 2d. per yard, the whole cost amounts to less than 10d. per annum per yard super, and will be much less if the cost of stripping and foundation be deducted. In Croydon, where the old road foundation was not disturbed, and some of the old road metal was utilised for the lower layer of tar macadam, the total cost was about 3s. 6d. per square yard when laid down 8 in. in thickness.

GENERAL BUILDING NEWS.

CHURCH TOWER, YATTON, SOMERSETSHIRE.—At a recent vestry meeting at Yatton, the chairman read the following report, prepared by Mr. E. Buckle, hon. diocesan architect :—"I am very sorry to have to report to you that the upper part of the tower of Yatton Church is in a very serious state of dilapidation. The spire has the appearance of having been shaken. The mortar has come out of a large number of joints, so that daylight shows through, and many of the stones have shifted from their original positions. There is very little strength in any part of the spire, and mere pointing would be of little use. It ought to be taken down and rebuilt. The stair turret is an addition to the tower, and the join between the new and old work has opened, but the upper part of the turret has all got very loose. This also should be taken down to about 10 ft. below the bottom of the tower parapet and rebuilt. The parapets are also in a bad way, and much of the stones broken up through the rusting of iron clamps. While the other work is going on, these should certainly be taken down, and replaced by new where necessary. . . . A further question has to be considered—whether the spire should be rebuilt in its present stunted form, or carried up to a point, as was clearly the original intention. Whether or not the spire was ever completed is uncertain, but as it was begun at least as early as 1455, and the churchwardens' accounts show considerable wealth for a long time after this date, it seems very improbable that it should then have been finished off short and rather clumsily instead of being completed. It may be, on the other hand, that, owing to its poor construction (it is not a good piece of masonry), it was thought unsafe to carry it higher, and there is an indication of something wrong in the fact of the spire having been pointed four times between 1491 and 1553. However this may be, the present outline possesses considerable beauty and gives a unique character to the appearance of the church which it would be a pity to destroy. The completed spire would be of great height, and may be very imposing, but my own feeling is strongly in favour of rebuilding the stunted tower just as it now is On this understanding, I estimate the cost of the repairs mentioned above at about 1,100*l.*" It was decided to adopt the report and ask the architect to prepare specifications and invite tenders.

SCHOOL, TROON, AYRSHIRE.—A new school has been erected in Barassie-street, Troon, from the plans of Messrs. J. & R. S. Ingram, architects, of Kilmarnock. The building is of red sandstone from Ballochmyle Quarry, Mauchline. The contractors were :—Messrs. Watson & Adams, Troon mason

* Transactions of the Association of Municipal Engineers, vol. xvi. p. 175

and brick work; Messrs. John Templeton & Co., Troon, carpenter and joiner work; Mr. David Walker, Troon, plumber and gasfitter work; Messrs. Thomas Hall & Son, Irvine, slater work; Messrs. Archd. M'Skimming & Son, Troon, plaster and cement work; and Messrs. James Boyd & Sons, Paisley, hot water heating apparatus. The total cost was upwards of 6,000*l.*

BOARD SCHOOLS, WESTON-SUPER-MARE.—New Board schools were recently opened in the Locking-road, Weston-super-Mare. The central hall is 56 ft. 6 in. by 30 ft., and there are five class-rooms 24 ft. 6 in. square, and two class-rooms, 25 ft. 6 in. by 21 ft. The architects were Messrs. Price & Wilde, and Messrs. Keen Bros. were the contractors.

NEW CLUB, BIRKENHEAD.—On Tuesday, the 12th inst., the Gladstone Liberal Club was opened at Birkenhead. The building is erected of brick, with Pen-y-cae stone dressings, the front being faced with red pressed bricks. The accommodation includes a billiard-room for three tables, smoke-room, reading-room, secretary's office, refreshment bar and lavatories on the ground floor; assembly hall for 400, green-room, and lavatories on the upper floor, whilst the basement contains kitchen, storage, and heating arrangements. The contractors were Messrs. John Lee & Son, of Bebington, and the building was designed and carried out by Mr. T. Taliesin Rees, architect, of Birkenhead.

CO-OPERATIVE PREMISES, GATESHEAD.—The new branch premises of the Gateshead Industrial Co-operative Society, Limited, in Saltwell-road, were opened on the 6th inst. The architect was Mr. Edwin Bowman, and the builders were Messrs. Raven & Hitcham.

FREE CHURCH, ABERLOUR, BANFFSHIRE.—The old Free Church at Aberlour has been enlarged from plans prepared by Mr. MacMillan, architect, of Aberdeen. The contractors engaged were:—Mr. James Lawrence, masonry; Mr. Charles Fraser, slating; Mr. John Wink, Nairn, plumbing; Mr. James Munro, plastering; and Mr. Kintrae, Elgin, painting, varnishing, and glazing. The pulpit, of pitch pine, was the work of Mr. Dunbar Craigellachie.

STEAM LAUNDRY, MITCHAM.—A new laundry for the Holborn Board of Guardians has recently been erected at Mitcham. The accommodation is arranged on one floor only, which gives facility in working. The boilers and engine-room are placed in the centre of the block, thus diffusing heat and power to the rooms grouped round them. The accommodation consists of receiving-room, foul linen-room, washing-rooms, drying-room, ironing-room, packing-room, and children's laundry. The buildings are lighted with side windows and top lights. Ventilation is obtained by fanlights and by rotatory fans. The walls are of brick and the floors of blue Staffordshire paving tiles and of wood blocks, and the roof is supported by steel trusses. The engine is Tangye's, the boilers Galloway's, the washing machines Bradford's, the steam ironing machine Tullis's, the other machinery and fittings Benham's, and the roof trusses Moreland's. In connexion with the same is a building for the laundry staff and also a house for the resident engineer. The buildings were erected by Messrs. H Wall & Co., Kentish Town, the machinery and engineers' work by Messrs Benham & Sons, the architect being Mr. C. Evans Vaughan, of London.

ABERDEEN BUILDING TRADE.—The Aberdeen building trades, which have enjoyed so long a period of prosperity, are at present experiencing somewhat of an eclipse. The number of plans of new buildings brought before the Town Council in recent months has not been quite up to the average, and it is well known in the building trades that a considerable number of plans which duly received sanction are not likely to be carried into effect, at least for some little time to come. There is no doubt that an element operating towards this result has been the recent rise in the price of money and the difficulty of finding money at a sufficiently cheap rate to enable various parties to proceed with building operations. Another reason, it cannot be doubted, is the fact that, in certain quarters of the city at least, the number of new houses provided has exceeded the demand. At the present time, in consequence, an unusually large number of operatives connected with the building trades, but building masons especially, are going idle in Aberdeen. This is not wholly due, however, to depression in Aberdeen. A very considerable number of masons have been driven home from South Africa by the war, and these have swollen the ranks of the home unemployed to a considerable extent. It is understood to be the intention of these men to return to South Africa; but meantime their presence in the city accentuates the otherwise very distinct impression of dulness in the trade. It was to be expected that the present condition of things would have some effect on wages. In the joiner trade a movement in that way has already taken place. Formal notice has been served by the employers that, owing to the slackness of trade, a reduction of ½d. per hour will take place in the wages. Three months' notice is necessary under the by-laws of the trade, so that the change would take effect between two and three months hence. The notice is at present under the consideration of the various operative organisations. No definite step in this direction has yet been taken in connexion with the mason branch of the building trades, although the matter is being considerably talked about privately. —*Aberdeen Free Press.*

STAINED GLASS AND DECORATION.

NEW WINDOW, PENSAX CHURCH.—The east window in the new chancel of Pensax Church, Worcestershire, has been filled with painted glass, designed and executed by Mr. Christopher W. Whall, illustrating the fifteenth chapter of St. Luke's Gospel. It is the gift of Mr. John A. Clutton-Brock in memory of his father, the late Colonel Clutton-Brock, of Pensax Court, and was dedicated on Sunday the 10th inst.

NEW WINDOW, LIMAVADY CHURCH.—A three-light memorial window has been inserted in Limavady Church, Ireland. The subject is the Ascension. The work has been executed by Messrs. Carlisle and Wilson, of Belfast.

FOREIGN.

FRANCE.—At its sitting on the 14th inst. the Société des Artistes Français definitely decided that next year's Salon was to be installed in the Place de Breteuil. The arrangements will be made known as soon as possible, and the date of opening is provisionally fixed for the beginning of April. ——M. Osiris has presented to the Institute of France a sum the interest of which will provide a triennial prize of 100,000 francs for the most remarkable work produced or discovery made, during the three years, in literature, science, art, or industry. The "Osiris prize" will be open only to Frenchmen, unless the year it falls due should coincide with that of a universal exhibition; in that case, foreign competitors will have an equal claim. The first award of the prize will be made in 1903. —— It is announced that the Universal Exhibition will be opened on April 15 of next year.——There is talk of a memorial statue to Auguste Comte to be erected on the Place de la Sorbonne. —— It is proposed to rebuild the fountain from the designs of Percier, formerly erected on the Place Dauphine to the memory of Desaix, and which was removed in 1875.——The monument to M. Alphand, in the Bois de Boulogne, was inaugurated on the 14th inst.——A group of painters, sculptors, and architects, among whom are MM. Moreau Nelaton, Dampt, A. Charpentier, and Selmersheim, have organised an exhibition in the Galerie des Artistes Modernes, Rue Caumartin, under the title "L'Art dans tout."——The Municipality of Paris have opened a competition for a large fire-brigade barracks at Ménilmontant. —— The Municipality of Bordeaux are about to undertake important works in architecture and street improvements, at an estimated cost of 15,000,000 francs.——The jury in the competition for the enlargement of the bathing establishment at Bourbole have awarded the first premium to MM. Beaudouin and Elesse, of Paris, and the second to M. Jarrier, of Clermont-Ferrand——The Municipality of Nimes has opened a competition for a new hospital, and the jury have awarded the first premium to M. Max Raphael, of Nimes; the second to MM. L. Muller, architect, of Marseilles, and E. Teissier, engineer, of Nimes; the third to M. G. Arnaud, of Nimes.

UNITED STATES.—The *American Architect* states that a monument is in process of erection in Fairmount-park, in Philadelphia, to the memory of the late Richard Smith, which is to cost half a million dollars, and will otherwise form one of the most interesting structures in the city. The idea of the architect, Mr. Windrim, is to divide the design into two portions, each consisting of a sort of colonnade, forming in plan an arc of 90 deg., and terminating in a pedestal, on which stands a single gigantic column, supporting a colossal statue. The two statues, with the columns on which they stand, are separated far enough from each other to allow the main driveway of the Park to pass between them, the curved screens diverging on each side, so as partly to enclose one of those circular deserts, or "concourses," formerly beloved of park commissioners. Places are provided on the structure for a large number of statues, and Messrs. D. C. French, W. Partridge, P. W. Bartlett, and J. Q. A. Ward have been already commissioned to execute the most important ones, while niches will be filled by works from the hands of Messrs. Bissell, Grafly, Calder, Esekiel and Murray, and Misses Bessie C. Potter and Katherine M. Cohen.

THE DRAINAGE OF BOMBAY.—*Indian Engineering* gives the following details of Mr. Santo Crimp's scheme for the drainage of Bombay; he recommends:—(*a*) The construction of the sea channel and sluices at Worlee. (*b*) The formation of the channel inside, with its bund across the creek to Mahim. (*c*) The formation of a channel to Jacob's Circle, *via* Haines Road. (*d*) The construction of branches from the latter to every low place where water accumulates; and the interception of the Agripada open drain and Agripada estate drainage. (*e*) The construction of a channel as far as Dadar Station, and the improvement and deepening of all water-courses discharging into it. (*f*) The abandonment of the existing storm-water reservoir. Finally, as the sewage from the side-channels and gulleys of unconnected houses passes, in many cases, into leaky surface-water drains, its collection by means of properly-constructed water-tight sewers should be pushed on with the greatest vigour, and the "water-proofing" of all surfaces in contact with sewage should be proceeded with more energetically, whilst waste from water-taps should be unceasingly combated. With regard to the cost of these proposals, close estimates cannot be formed until surveys have been made and detail-drawings prepared.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS.—Mr. R. M. D. Lucas, architect, has removed his offices from 1 Portland-street Southampton, to Bar-gate-chambers, High-street, Southampton.——Messrs. J. Chessum & Sons, builders, have removed their establishment from Crown-wharf, 283 Kingsland-road, N. to Crown Wharf, Monier-road, Bow, E. ——Mr. T. E. Knightley, F.R.I.B.A. (Surveyor to the Birkbeck Building Society), and Mr. T. Batter bury, F.R.I.B.A., F.S.I., conjointly have taken offices at Birkbeck Bank Chambers, Chancery-lane, London.

BURLINGTON FINE ARTS CLUB.—The committee of this Club intend to organise an exhibition (to be opened in the Gallery of the Club in January next) of chased and embossed steel and iron work of European origin. The exhibition will be confined to specimens specially remarkable for design and workmanship, and will comprise caskets, cabinets, locks, keys, clocks, cutlery, instruments, weapons, stirrups, bits, shields, helmets, &c. It is not intended to illustrate the history of the development of armour, but a few pieces of exceptional artistic interest will be included.

COMMONS AND FOOTPATHS PRESERVATION SOCIETY.—A meeting of the Executive Committee of the Commons and Footpaths Preservation Society was held at 1, Great College-street, Westminster, on the 14th inst, the Right Hon. G. J. Shaw-Lefevre presiding. The preliminary report of the Secretary, Mr. Lawrence W. Chubb, on the provisions of Private Bills to be introduced into Parliament in the coming Session, was considered. From this it appeared that, according to the Statutory Notices, power is sought in thirty-five Bills to appropriate Common Land and Open Spaces, or to extinguish right-of-way. Of these eight are Gas and Water Bills, which propose to absorb 1,732 acres of common land in various parts of the country. Fifteen are Improvement and Miscellaneous Bills, the promoters of which are endeavouring to compulsorily acquire 790 acres of common; while twelve Railway Bills will affect 74 acres of open space. The total extent of the common land which it is proposed to appropriate is 2,596 acres, and as the area affected is not specified in respect of several Bills, it may be concluded that over 3,000 acres of open space will be extinguished in the coming Session unless satisfactory terms for the protection of public interests are obtained. On the other hand, no fewer than thirteen Local Authorities are seeking power to enable the purchase or improvement of open spaces to be effected. Amongst these Bills is that promoted by the Tottenham Urban District Council, by which the large area of Lammas Land, bordering the River Lea, in the Parish of Tottenham, will be secured as an open space. The Bournemouth Corporation is also endeavouring to obtain authority to acquire for the public the extensive Turf Fuel Allotments in the Parish of Christchurch; these lands were set out under an Inclosure Act of 1802, and have become notorious owing to the protracted litigation with respect to their legal position. The report was referred to the Society's solicitors for consideration. It was reported that the Society was actively advising in or otherwise assisting Local Authorities and private individuals to deal with forty-eight cases of interference with common land and open spaces and fifty-three cases of obstruction of rights-of-way in England and Wales.

VALUE OF A BUILDING SITE IN HOXTON.—In the capacity of umpire, Mr. Balfour Browne, Q.C., recently held an inquiry into the value of certain building land in Shepherdess-walk, Hoxton, required by the Receiver of Police for the erection of a police-station. The claimant, Mr. Bromet, is the lessee under the Charity Commissioners of a large area of land fronting Shepherdess-walk and Nile-street. The ground rent is 3,350*l.* per annum, and the condition imposed was that the buildings to be erected should be of the annual rental value of five times that sum. In March, 1898, the Receiver of Police obtained an Act in which was embodied an order made by the Secretary of State for the acquirement of a portion of the property, containing an area of 39,076 ft., and notice to treat was served upon Mr. Bromet in the same year. The ground rent of this area was apportioned at 895*l.*, and a large sum, varying from 16,000*l.* to 21,000*l.*, was claimed as the difference between the value of the land as originally laid out and its value as it could be developed without the portion acquired. Mr. Balfour Browne has assessed the value at 8,375*l.*, which figure represents about half the amount suggested on behalf of the claimant.—*City Press.*

WIDENING OF FENCHURCH-STREET. — Messrs. Douglas Young & Co. have sold the lease of Bibras Restaurant, which was bought in at the recent auction by order of the Corporation. The price realised was 16,000*l.* The purchaser has to pull down the present premises and rebuild at a cost of not less than 6,000*l.*

STATE OF THE BUILDING TRADES IN NOVEMBER.—According to the *Labour Gazette*, employment in the building trades during November, though still good, was scarcely so active in some branches. The percentage of unemployed union members among carpenters and plumbers at the end of the month was 1·5, compared with 1·1 in October of this year, and also in November, 1898. Two disputes commenced during the month, and both have been settled.

LEICESTER MASTER BUILDERS' ASSOCIATION.—The annual dinner of the members of this Association was held at the "Bull's Head Hotel," Market-place, on the 14th inst., the President (Mr. Arthur Chambers) in the chair. The Secretary (Mr. W. E. Starkey) read a letter, regretting inability to attend, from the Borough Surveyor. In it Mr. Mawbey wrote:—"During the four quarters ending September 30 last, plans were passed for 2,005 new houses, as against 2,404 during the four quarters of the preceding year, and the total number for new houses and all other alterations is 3,456, as against 3,901 during the previous year. The decrease is doubtless largely due to the unfortunate troubles of the present year; nevertheless, the making of something like sixteen miles of new streets has been in hand during the year. I am glad to be able to state that the amicable relations between the master builders and my departments have been well maintained, notwithstanding the strict supervision exercised, which has required no less than 42,591 separate inspections of work during the past year." The President gave "the Queen," and subsequently the "National Association of Master Builders of Great Britain and Ireland, and the Midland Federation." To some of his hearers the National Association of Master Builders of Great Britain might be looked upon as an ornamental figure-head, but it was very much more than that. They had in that body what he might term the pick and cream of the builders of the whole country. The struggle with the plasterers had now been brought to a close, perhaps not so satisfactorily as might have been wished, but if enthusiasm could have carried the day, there was no doubt the master builders would have had it. It was not to be. However, when other negotiations were entered upon, they could rely upon it that the Master Builders' Association had learned during that struggle what would be of value to them in such negotiations. Organisation, federation, and co-operation were to be the watchwords of the future for employers, not only in the building trade, but in other trades in the country. With reference to the Midland Federation, that body was doing its best.—Mr. Porter, President of the Derby Association, whose name was coupled with the toast, said in labour disputes it was much better to struggle, even if they lost. They could not let the men have everything their own way. Mr. MacDowell gave the "Leicester Master Builders' Association and Kindred Trades." The Chairman responded, and, referring to the struggle with the bricklayers' labourers, said he was delighted to find that after having passed through such a very severe struggle, which extended over a period of twenty-six weeks, the Association had held its own. He was pleased to say that nearly the whole of the seceding firms would pay the fines imposed, and would in a short time be reinstated with the Association. He hoped the members would endeavour to bring in other employers. Mr. E. Fox, Vice-President of the Association, gave "The Leicester and Leicestershire Society of Architects." Mr. A. H. Paget, who responded, observed that the more builders and architects could be brought to understand their respective positions the better it would be for their interests. Some of his hearers would know that the architects made an attempt this year to help the builders in their difficulties, and they were very sorry that the suggestion they ventured to throw out did not meet with acceptance all round; but they understood that the suggestion was received in the spirit in which it was offered. Mr. Broadbent proposed "The Trade and Town of Leicester." Councillor Shaw responded.

PRESENTATION TO A SOUTHPORT ARCHITECT.—On the 14th inst. a presentation of an illuminated address and a purse of gold was made to Mr. C. Sydney Ingham by the various contractors and workmen employed in the erection of the new premises of the Manchester and County Bank, Limited, Southport. The gift was to commemmorate Mr. Ingham's marriage.

THE INSTITUTE OF SANITARY ENGINEERS (INCORPORATED).—At a general meeting held on the 13th inst., the following officers were elected for the year 1900:—President: Mr. R. Reynolds Rowe, Cambridge. Vice-Presidents: Messrs. S. I. Adams, Southend-on-Sea; H. M. Dove, London; J. Farley, Hertford; S. Minty, Bournemouth; W. J. Wells, Reigate; J. B. Wilkinson, Oldham. Council: Messrs. J. Allan, London; H. M. Apps, Maidstone; F. P. Barber, Rubery, Worcestershire; H. G. Beams, Ewell; C. E. Butcher, London; G. H. Carter, London; E. D. Cecil, London; T. W. Deadman, St. Margaret's-on-Thames; Lieut.-Col. Dixon, Sutton, Surrey; C. Dobbs, Sydenham; J. T. Griffin, Chingford; R. Horton, Chelsea; N. W. Hoskins, New Eltham; W. E. Markham, London; F. W. Mason, Enfield; T. R. Nash, London; E. R. Palmer, Beckenham; F. J. Rayner, Newhaven; W. Strachan, Hemel Hempstead; T. M. Taylor, London; J. Thompson, Southend-on-Sea; E. H. Wheeler, East Molesey. Auditor: Mr. R. J. Ward, C.A., 2, Clement's-inn, W.C. Directors: Messrs. W. J. Wells and H. M. Dove.

DESTRUCTIVE FIRE AT COVENTRY.—A fire of considerable dimensions broke out on the 15th inst. at the timber yard and buildings of Mr. C. Gray Hill, contractor, in Little Park-street, Coventry. The caretaker gave an alarm at the police station, and the city brigade, as well as the Dunlop, were soon on the spot. But the fire progressed at a considerable rate, and some of the buildings forming Messrs. Phillips & Marriott's Brewery also caught. The engine-house and workshops on Mr. Hill's premises were destroyed, and some wood in piles, but the great bulk of the timber was saved. The damage amounts to several thousands of pounds.

THE DOVER HARBOUR WORKS.—On the 15th inst. the first block was successfully laid by Messrs. Pearson for the Admiralty Harbour works at Dover. The blocks weigh no less than forty tons each.

LEGAL.

SUCCESSFUL APPEAL BY BUILDERS:

WELSH *v.* MAYOR, &C., OF WEST HAM.

THE case of Welsh *v.* Mayor, &c., of West Ham came before a Divisional Court of the Queen's Bench, consisting of Justices Darling and Channell, on the 18th inst.

Mr. Houghton, for the appellants, said this was an appeal by Messrs. Welsh, builders, from a conviction for an alleged continuing offence against a by-law made by the West Ham Corporation under the powers of the Public Health Act of 1875. The Deputy-Magistrate of West Ham had fined the appellants 30*l.*, with the ordinary powers of distress to recover the money. The appellants in the year 1898 rebuilt for the Commercial Brewery Company a public-house called the "Dewdrop Inn," Arkwright-road, Canning Town. What was intended by the brewers was to make very substantial alterations in the premises, which were old-licensed premises, but it was found necessary to pull down the containing walls of the building. This technically made the building a new one, and although the appellants had obtained the sanction of the Local Authority to the plans there was no sanction of the building at the time it became technically a new building. That being so the building was erected without the approval of the Local Authority although it had been approved by the magistrates for licensing purposes. On November 16, 1898, an information was laid by the Engineer of the West Ham Corporation on behalf of his employers, and a summons was issued against the builders for an alleged offence under the by-law which prescribed the number of cubic feet of air which should be left at the rear of all new buildings. On November 30 Messrs. Welsh were convicted on that summons and fined 5*l.* and costs, and for the purposes of the day it must be assumed that that conviction was a good one. The case now stated by the magistrate found, however, that from that date the appellants went out of possession and gave up the premises to the Commercial Brewery Company and their purchaser. On January 30—that was nearly three months after the first conviction — a notice was served upon Messrs. Welsh, asserting against them an offence under Section 158 of the Public Health Act and the by-law of the Corporation in question, which was founded upon it. That Section, amongst other things, provided that where an Urban Authority might, under the Section, pull down or remove any work begun or executed in contravention of any by-law, or where the beginning or execution of the work was an offence against a by-law for which the offender was liable to a penalty, the existence of the work during its continuance in such a form or state to be a contravention of the by-law should be deemed to be a continuing offence, but that the penalty should not be incurred at the expiration of one year from the date when the offence was committed and the by-law was broken. The appellants were again convicted on a second summons, and the whole point, in his judgment, was whether there was power to convict a builder of a continuing offence under the by-law and the statute, when the builder had already been fined and was out of possession of the premises, upon which he could not enter to make the alterations necessary to bring them into conformity with the by-laws without being subject to an injunction by the High Court. If the builder trespassed, and an injunction was obtained, and still he went on trying to make the alterations desired, he would be liable to be committed by the High Court for contempt of court. The learned counsel argued that such a result would be absurd, and contended that the proper person to proceed against for the continuing offence was not the builder, but the owners of the premises (the Commercial Brewery Company) or the freeholders of the land on which they were built.

Mr. Gwynne James (with him Mr. Asquith, Q.C.) for the respondents, the West Ham Corporation, submitted that the decision of the deputy magistrate was right. He said that, by the action of the appellants, the premises had been converted into a large hotel, and it was said that the West Ham Corporation must ascertain the name of the owners or freeholders, a very difficult thing to do, and proceed against them. In this case the builders had defied the law, and had without proper plans built an hotel without proper air space at the back, and had then given up possession. Under these circumstances the Legislature had said that the builder should be liable to penalties, but, it appeared to him, in order to meet the very contention put forward on the other side, had limited the continuance of the penalties to one year. On the question of hardship, he therefore thought there was nothing to be said.

Mr. Justice Darling, in giving judgment, said that in the case it was found as a fact that the appellants were not now in possession of the premises, and had not been in possession of them since the date of the first conviction, November 30. Therefore, since that date they had no right to go upon the premises nor any power or authority to do any work there. It was admitted that they could not go on the premises to remedy the continuing breach without a trespass, but it was said that by this Act of Parliament the builders were made responsible and were liable to pay the penalty which the magistrate had inflicted, viz, one of 30*l.*, being at the rate of 10*s.* a day for sixty days during which the building continued in the state in which they left it. The Local Authority might have themselves gone and pulled down the premises erected in contravention of the by-law, and although the statute said that for the buildings to remain in that form was a continuing offence, the question was who committed it. He thought it was not the builder. The builder had done wrong and had been fined for it. He had gone away, and could not come back and do anything in the matter without committing a trespass. The Local Authority could have put an end to the affair at once, or have proceeded against the gentleman who really was responsible for allowing it to be continued. The statute stated that it should be a continuing offence, but did not say it was one which made the person who first committed the offence liable. He was responsible for his own misdeeds, and it did not follow that some one else who ought to put right what he had done was not liable for the continuing offence. He was not concerned to say who it was who committed the continuing offence, but that person was not the original builder of the building.

Mr. Justice Channell concurred, and the appeal was, therefore, allowed, and the conviction quashed with costs.

ACTION AGAINST BUILDERS.

THE case of Pritchard *v.* Leslie & Co., Limited, came before Mr. Justice Phillimore and a special jury in the Queen's Bench Division, on the 19th inst. It was an action brought by the plaintiff, who was engaged by the defendants, a firm of builders and contractors, as timekeeper in September, 1898, for damages for alleged false imprisonment and malicious prosecution.

It appeared that the plaintiff's duty was to keep time-sheets from which the wages due to the men were to be ascertained, cash being given him from time to time to pay the wages, and for which he had to render an account. During the first two weeks of the plaintiff's employment he rendered the proper time-sheets and the wages were paid on the Saturday in the proper way. On the Friday in the third week he left his employment, going away without leaving any address, and, as the defendants alleged, short in his accounts by about 5*l.* The defendants' managing clerk and accountant, in the absence of the managing director of the company, communicated with the police, and acting upon their advice he went with a constable and had the plaintiff arrested at his lodgings on the Monday. The plaintiff was tried on a charge of stealing moneys belonging to his employers, and was duly acquitted. It transpired from the evidence that the plaintiff was engaged by the managing director of the company, and that the managing clerk had no express authority from the directors to arrest the plaintiff; that upon the hearing of the charge before the magistrate the defendants' foreman appeared to prosecute and signed the charge sheet, and that the managing clerk thought by arresting the plaintiff he would recover the money alleged to have been stolen.

Mr. Marshall Hall, Q.C., for the defendants, argued that there was no question to be left to the jury on the question of false imprisonment, as the clerk, apart from express authority, had no authority to put the law in motion. He also contended that there was no evidence of want of reasonable and probable cause, nor could there be any malice, as a company could not be guilty of malice in its corporate capacity.

Mr. Watt, for the plaintiff, contended that a servant had an implied authority to give a person into custody to preserve his master's property, and that the defendants acted unreasonably in going on with the prosecution without making proper inquiries.

His lordship held that there was no evidence that the defendant's clerk had authority to give the plaintiff into custody, and withdrew from the jury the case for false imprisonment. On the question of malicious prosecution, the jury found that the defendants' managing director, or other person responsible for the prosecution, honestly believed that the plaintiff had absconded and was short of his cash, and on this finding judgment was entered for the defendants with costs.

ACTION FOR PERSONAL INJURIES.

AT the Clerkenwell County Court, before his Honour Judge Edge. George Green, plumber, 58, Grosvenor-road, Lower Edmonton, sued Messrs. Grover & Son, builders, Wilton Works, New North-road, Islington, for 50*l.* for personal injuries.

Mr. Glasgow was counsel for the plaintiff, and Mr. Duckworth represented the defendants.

Mr. Glasgow said that on September 25 last it was necessary for the plaintiff, a plumber, to go down to the ground from some staging on the building in order to get a supply of lead. There was first the staging and then a second ladder, which conveyed him to the ground. He ascended all right, and it was necessary for him to go down again, and as he was getting to the foot of the first ladder, he placed his foot upon a piece of wood at the bottom, the ladder having been placed on those pieces. This gave way, the plaintiff's ankle was wrenched and he had since suffered great pain. He was conveyed to St. Bartholomew's Hospital, where his injuries were attended to. His wages were 49*s.* weekly; and he had suffered eleven weeks' loss of wages, less 12*s.* which his employer had given him, so that his total loss was about 27*l.* The defendants were not the plaintiff's employers, but it was their duty to take care that their plant was in such repair that every workman had a right to expect proper protection.

Medical evidence was called as to a considerable swelling of the plaintiff's ankle and foot, and to the fact that he had not yet recovered.

Plaintiff supported his counsel's opening statement, and in defence the foreman to the defendants was called. He declared that all the plant on the building was perfectly safe, and that no complaints whatever were received about the ladders.

Other workmen supported this version, and at the close of the addresses to the jury the latter found a verdict for the plaintiff for 30*l.*, judgment being entered accordingly, with costs.

RECENT PATENTS:

ACCEPTED SPECIFICATIONS.

Open to Opposition until February 13.

[1898] 21,043, Rice, Electrical Meter Systems. 25,640, Morey, Means of Compressing Air for Operating Burglar and Fire Alarms, &c. 25,649, Davy, Raising and Lowering Apparatus for Mines, &c. 25,891, Brindle & Ellison, Cover and Lid for Cinder-sifting and other Shovels, &c. 26,375, Maës, Apparatus for Checking Workmen's Times: see also [1899] 2,924. 26,600, Smith & Scruton, Endless Block Tackle for Raising, Lowering, and Hauling Heavy Weights, and for similar Mechanical Purposes. 26,732, Purvis & Purvis, Apparatus for Manipulating Metal Baths and other Articles during the Process of Enamelling. 27,049, Shurmer, Wood-working Machine. 27,218, Schmidt, Pocket-knives for Artisans and Mechanics. 27,329, Monplot, Public Lighting Apparatus. 27,509, Himes, and [1899] 21,752, McCartea & Lister, Nut Locks. 27,606, Snowdon, Incombustible Floor Cloth. [1899] 210, Holman, Means for Securing the Lids of Gas Retorts, applicable also for other Lids, Flaps, Doors, &c. 477, Brockelbank, "Fastenings." 1,487, Davidson, Electrical Light Wire Casing. 1,688, Direktor, Claasen, & Co., Filters. 1,742, Heaton & Dugard, Casements and their parts. 2,015, Cranstone & Archer, Hydraulic Lifts. 2,140, Cree, Door and Gate Bolting or Locking Apparatus. 2,412, Binny, Scale Trap for Boilers and Heaters. 2,436, Sinclair, Kitchen Ranges. 2,714, Edge & Mangnall, Instrument for ascertaining the shape of the wearing surface of Tram Rails or other surfaces subject to wear. 2,731, Warwick, Structures for Playing Grounds and Pleasure Resorts. 2,742, Bowles, Electrical Floats for Theatrical Purposes. 2,769, Hellyer, Water-closets, Slop Sinks, &c. 2,848, Smith, Varnish. 2,886, Crabtree, Crabtree, & Shaw, Guard for Presses used in the Stamping and Drawing of Sheet-Metal. 2,924, Beard, Checking Devices for Watchmen, Workmen, &c. 2,950, Holden, Bell, & Taite, Injectors or Apparatus for Burning Liquid Fuel. 3,066, Shanks, Waste or Discharge Valves of Sinks, Washing Vessels, Baths, and Lavatories. 3,180, Howell, Friction Gearing. 3,210, Curtin, Plug or Wedge for Fixing the Flashing of Buildings and other Structures. 3,350, Lockley, Latches. 4,177, Flood, Oil Lamps. 4,449, Uphill, Automatical Locking Appliance for Hand Trolleys. 5,929, Reisert, Water-Meter. 6,057, Boyer, Water Filters. 13,008, Déri, Conversion of Alternating Currents into Continuous Current. 14,622, Sonneborn, Means for Laying Dust. 15,014, Cox, an Interlocking Roofing Tile. 16,050, Von Forell, Production of Portland Cement from Blast-Furnace Slag, Lime, &c. 17,910, Greenwood, Lamps and Stoves. 19,658, Boyd, Hot Closet Fitted to a Domestic Fireplace for Cooking, Warming, &c. 19,660, Boyd, Open Fire Stove for Burning Anthracite or other Smokeless Fuel. 20,035, Donnelly, Screening Apparatus. 20,099, Powers, Means for Automatically Supplying Water to Fire Hoses. 20,416, Hindmarsh, Drain Gratings, &c. 20,792, Irwin, Apparatus for Carburetting or Enriching Gas. 20,796, Barnes, Window Sashes, Shutters, &c. 20,801, Empire Engine and Motor Company, Hoists. 21,137, McAdams & Book, Aluminium Alloys and Method of Casting them. 21,230, Bailey & Stevens, Pipe Couplings. 21,393, Payzant, Solderless Cans. 21,652, Case, Method of Synchronising Electrical Motors. 21 814, Lebioda, Process for Preserving Wood. 21,921, Hutton, Carbonising and Obtaining Products from Precipitated Sewage Sludge. 21,958, Kaudelka, Flexible Ruler. 21,970, von Appen, Tube Cutters, and Similar Tools. 21,987, Schneider, Blasting Rocks, &c. 22,337, Wegelm, Manufacture of Soot or Lamp-Black from Tar, &c. 22,421, Shotel & Plancher, Carburettors for Gas Engines.

ABSTRACTS OF PATENTED INVENTIONS.

17,933.—BRICK MOULDING: *T. C. Fawcett.*—A pipe or bag and a hopper feed the clay into a sloped feeding trough, the amount of clay being regulated by an adjustable hinged flap, whilst toggle-jointed levers move the plunger through which superfluous clay escapes.

17,980.—TREATMENT OF WOOD, &C.: *British Non-Flammable Wood Company.*—For drying and preserving wood and other materials; the wood is first heated in a closed kiln by means of a steam coil, and a circulation of air is maintained with an engine-driven fan from which the air passes through a condenser, then through a heater and so again into the kiln, whence, together with its absorbed moisture, it is drawn away for return to the fan. The condenser is fitted with coils of cooling pipes for removing moisture taken up by the air from the wood.

17,986.—WROUGHT-IRON GAS PIPES, &C: *C. Twer.* For making pipes with overlapping edges, a mandrel, held by a pivotted arm, is provided for the bell into which the skelp is introduced, and the bell carries rollers mounted upon adjustable bearings; the two overlapping edges of the skelp are welded together as it is drawn forwards, the mandrel, which may be balanced, is removed by lifting the lever and taking out the retaining pin.

17,997.—ACETYLENE LAMPS: *C. A. & F. J. Miller.*—The lamp is made with the bottoms of its filtering and carbide chambers removable, and with a spring which presses a plate or cover upon the carbide, a button or cap is turned round to control the valve of the water supply, and the valve's position is indicated by a fixed pointer; the water trickles down a wire and through a perforated tube to the carbide.

18,026.—WINDOWS AND THEIR FASTENINGS: *C. E. Hadlow.*—Chains running over pulleys in the frame's top join together and balance the sashes on which are slips that slide in grooves of the pulley stiles; portions of one of the stiles are made detachable—whilst kept in their place with a sliding bolt—so that the sash may be taken out of the frame; when closed the sashes are fastened by means of an engagement between a slotted plate on the sill and a catch pivotted on to a plate of the lower sash's bottom rail, a stop-pin holds up the catch when it is turned back; a rail is hinged on to the sill, and a weather board is fastened to the outside of the window head.

18,043.—SAFETY HOOKS TO PREVENT OVER-WINDING: *A. G. & W. W. A. Laker.*—For cages of lifts, &c., the shackle-chain passes through a hole in a plate, which is pivotted to two side-plates formed with hooked portions for engagement with the catch-plate, and formed also with other hooked parts that engage the shackle pin upon the lifting-chain; if over-winding happens, the catch-plate's lower face strikes the inclined faces of the side plates, and by turning them upon their pivot, frees the upper shackle, and so enables the hooked parts to spread apart and hold up the cage; bolts, sliding in vertical slots in the pivotted plate and in angle-wise slots in the side plates, prevent an accidental closing of the hook, and additional security to that end is provided for by means of other bolts that slide in slots cut in the plate and normally sustained by shoulders upon the side plates, whilst locking action is avoided by shaping two of the inclined or angular slots in curves struck from the pivot's centre.

18,051.—ELECTRICAL CUT-OUTS: *J. G. Childs.*—A tube of insulating material encloses the fuse wire, and is open at the end remote from the supply terminal; the arc is blown out by the rush of air. In one shape the tube has at one end a plug and a contact; the wire's other end is joined to the second contact, which is clamped to the tube and insulated, the two contacts and the contacts upon the base being so constructed that the fuse can be attached in only its proper position.

18,067.—CIRCULAR-SAW GUARD: *E. J. Shackleton.*—In order that the guard may be adjusted to fit the size of the saw, it is composed of four sections pivotted together; the two sides of three sections are joined by thin bars, whilst of the fourth section one side is turned upwards upon its pivot to enable the wood to be passed along; in the case of small saws, one section, or more, of the guard can be dispensed with; the guard is held by a screwed bar, to be raised or lowered in a radial arm upon a standard.

18,080 and 18,082.—SHELVING AND BUILDING PARTITIONS FOR LIBRARY SHELVES, &C.: *W. H. & F. A. Winslow.*—A framework of uprights, and horizontal and inclined stays, is secured to a wall by rods fastened with screw clamps to the top rails, each upright consists of four flat bars, the shelves being clamped to the uprights, tie-rods that pass through stay tubes and cross-bars uniting the four bars of each upright, form the horizontal stays, and tubes with socket pieces at their ends form the inclined stays. [18,082] The uprights consist of central and strengthening bars whose lower ends are turned to form feet to be bolted to the floor, the frame is tightened up with nuts, and tubular trusses engage with pieces at the crossings of the uprights and the tubular horizontal members—the latter being sustained by rods that pass through them and through the uprights.

18,084.—BRICK MOULDING: *L. Cockburn & J. Hay.*—For easy removal of moulds, or their faces, for their renewal, and for bricks of diverse patterns and sizes, the inventors devise a sector-shaped mould with under-cut and raised edges into which fits a plate having an opening cut in it and with recesses for the strips and projections of a mould which is inserted from beneath and is thereby held in its place.

18,106.—INDICATOR FOR MEASURES, LEVELS, AND CLINOMETERS: *F. Gebhardt.*—A disc space is cut out of the rule or other instrument for the insertion therein of a disc in front of which are fitted a ring, turned inwards, and another flanged disc upon which is mounted a dial. The dial is marked from 0° to 90° in each quadrant of its face, and has at its centre a spindle on which is mounted a pointer with a pendulum arm, protected by a glass cover.

18,110.—TREATMENT OF CARBIDE: *International Patent Company.*—The process is intended to make and induce calcium or other carbide, having a saponified oil, to re-act more uniformly and slowly when it is wetted. An admixture is composed of pulverised calcium carbide (78 parts), containing free lime, and oleic acid (12½ parts), beeswax (3 parts), and resin (6½ parts), to which a little free lime may be added. For the oleic acid (red oil) can be substituted tallow, olein, stearin, or linseed oil. The compound is stirred whilst it is being heated, and is then pressed into shapes.

18,149.—GAS IGNITION: *A. J. Sterne.*—A pellet composed of platinum-chloride solution, sand, and ground asbestos, mixed to the consistency of putty, is tightly wrapped in asbestos fibre and bound up in fine platinum wire, the igniter is dried, dipped into a diluted solution of plantinum chloride and again dried; it is then mounted upon the end of a lever, where its effective igniting surface is increased by binding platinum wire in contact therewith. The pivotted lever is adjusted so as immediately after ignition to return to position and thereby prevent spoiling of the igniter by remaining too near the flame.

18,150.—A VENTILATOR: *E. L. Evens.*—The box of the ventilator, made of two halves hinged together, is recessed in the meeting-rails of two window sashes, and is opened or closed with a sliding gridiron valve; the catch-plate of the fastening comprises a stop, with a spring-plate and bolt.

18,176.—FASTENINGS FOR DOORS AND GATES: *R. Beckett.*—The bar of the gravity catch is pivotted to the gate-head and its splayed lower end engages with a striking plate upon the post by reason of the heavier weight of the bar's upper portion; in another shape the bar is pivotted on to the gate post.

18,210.—BUILDING BLOCKS AND BRICKS: *H. T. Grainger.*—Interlocking ribs and grooves are fashioned in the bedding faces and ends of the bricks, which also have grooves that form air passages when the bricks are laid. Wooden plugs for nails are embedded in the block's outer face.

18,271.—APPARATUS FOR COOLING, MOISTENING, AND PURIFYING AIR: *E. Weidlich.*—A portable apparatus, designed for use in tunnels, mines, hospitals, barracks, and similar enclosed places, consists of an upper tank or pipe from which water is directed through perforated pipes down upon sheets of flannel or other absorbent fabric, and is thence collected in a tank below.

18,272.—ELECTRICAL CURRENT METERS: *G. K. B. Elphinstone & A. C. Heap.*—Current from the secondary of a transformer (whose primary carries the current to be measured) is supplied to a recording instrument after the kind described in No. 26,399 of 1897; the transformer is provided with closed magnetical circuits composed of iron plates of an E shape around whose central portion are placed the primary circuit and the secondary coil, both being insulated; for large currents, flat plates, laid edge-wise on the secondary coil in order to obviate eddying currents, are used for a primary winding; a switch may join one measuring instrument to the secondary of any one of several transformers whose primaries belong to different circuits; the invention extends to a watt-meter, the laminated field magnet windings taking their supply from a transformer whose primary conveys the main current, the movable coil being supplied from another transformer of which the primary is connected between the supply mains, adjusting resistances are employed for the secondary circuits.

PRICES CURRENT OF MATERIALS:

WOOD.*

Per Petersburg standard hundred.

	£	s.	d.	£	s.	d.
White Sea: first yellow deals	18	0	0	21	10	0
Second do.	16	0	0	18	0	0
Third do.	13	10	0	15	0	0
Battens, 40s., 30s., and 15s. less respectively.						
Petersburg: first yellow deals	15	0	0	17	10	0
Second do.	12	0	0	13	10	0
Battens, 30s. and 20s. less respectively.						
Petersburg, white deals	10	10	0	12	10	0
Do. white battens	9	0	0	10	0	0
Riga, white deals	9	10	0	10	10	0
Swedish mixed yellow deals	16	0	0	18	0	0
Third do.	14	0	0	16	0	0
Fourth do.	12	0	0	13	0	0
Fifth do.	11	0	0	12	0	0
Battens, 30s., 20s., and 10s. less respectively.						
Whitewood, 10 to 20 per cent. less.						
Finnish unsorted yellow deals	11	0	0	11	10	0
Battens, 10s. and 5s. less respectively.						
Whitewood, 5 to 10 per cent. less.						
Norwegian second yellow battens	8	0	0	8	10	0
Third do.	7	15	0	8	0	0
Fourth do.	7	10	0	7	15	0
Whitewood, 10s. less.						
Danzig, Crown Deck deals, per 40 ft. 3 in.	0	15	0	1	5	0
Brack	0	12	0	1	0	0
St. Lawrence Pine deals, &c., per P.S.H.:—						
1st, Bright and Dry, regular sizes	20	0	0	27	0	0
" " oddments	13	0	0	20	0	0
2nd " regular sizes	15	0	0	17	10	0
" " oddments	10	0	0	14	0	0
3rd " regular sizes	9	0	0	11	0	0
" " oddments	7	10	0	9	10	0
4th " regular sizes	8	0	0	9	0	0
" " oddments	7	0	0	8	10	0
St. Lawrence Spruce deals, &c.						
First, regular sizes	9	10	0	12	10	0
Second "	9	0	0	9	10	0
Third "	8	15	0	9	0	0
Fourth "	8	0	0	8	10	0
Oddments and battens at 20s., 10s., 7s. 6d., and 5s. less respectively.						
New Brunswick Spruce deals, &c.	8	10	0	9	0	0
Oddments, battens, and fourths	8	0	0	8	10	0
United States pitch pine planks and boards	10	0	0	13	0	0
Prepared Boards, per square						
1½ by 6½ and 7 in. 1st yellow		10	0		15	0
" " 2nd "		0	6		12	0
1 by 6½ and 7 in. 1st "		9	0		11	0
" " " white		8	0		9	6
" " 2nd yellow		8	0		10	0
" " " white		7	0		8	0
¾ by 6½ & 7 in. 1st & 2nd yellow		7	9		9	0
" " " white		7	6		8	6
¾ by 6½ and 7 in. 1st yellow and white (grooved, tongued, and beaded)		8	0		9	6

* The prices named are for the wood as imported and landed in the docks. Ten per cent., approximately, should be added in order to arrive at the current trade prices.

PRICES CURRENT—*continued.*

	£	s.	d.	£	s.	d.
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		7	6		8	6
¾ by 6½ and 7 in. 1st yellow and white (ditto)		6	6		7	6
¾ by 6½ and 7 in. 2nd yellow and white (ditto)		6	0		7	0
Narrower widths at 10 per cent. less. 3rd quality at 15 per cent. less than 2nd.						
Danzig and Memel Fir Timber—per load						
Best middling	3	15	0	4	0	0
Good middling and Second	3	5	0	3	10	0
Common middling	3	0	0	3	5	0
Undersized	3	0	0	3	5	0
Swedish and Norwegian Balks	2	10	0	2	15	0
Baltic Oak Timber—						
Danzig and Stettin—Large	3	5	0	4	5	0
Small	2	10	0	3	5	0
Quebec Timber per load						
Yellow Pine	4	15	0	6	5	0
Oak	4	12	6	6	15	0
Elm	4	2	6	4	7	6
Ash	3	7	6	4	2	6
Birch	3	7	6	5	15	0
New Brunswick, &c., Birch	3	2	6	3	12	6
American Pitch Pine Timber	3	17	6	4	10	0
Wainscot, per log, 18 cubic ft.—						
Crown (Eng. & Dutch) } nominal {	3	7	6	4	10	0
Brack } nominal {	2	12	6	3	12	6
Lathwood, per cubic fathom—						
Petersburg	4	0	0	6	10	0
Riga and Danzig	4	10	0	5	10	0
Norway Poles, per ft. run	0	0	1	0	0	1½
Oak Staves, per mille full size pipe						
Memel, Crown	220	0	0	230	0	0
Brack	190	0	0	200	0	0
Danzig	165	0	0	175	0	0
Bosnia, single Barrel (nominal)	28	0	0	30	0	0
United States, Pipe	37	10	0	45	0	0
Hogshead, extra heavy and double extra	30	0	0	35	0	0
Indian Teake per load	11	10	0	17	0	0
British Guiana Greenheart	0	0	0	8	0	0
Mahogany, per foot superficial—						
Honduras, cargo average	0	0	5	0	0	6½
Nicaragua, do.	0	0	4½	0	0	5½
Tabasco, do.	0	0	4½	0	0	6½
Mexican, do.	0	0	4	0	0	4½
Panama, do.	0	0	3	0	0	4
African, do.	0	0	3½	0	0	5½
Cuba, do.	0	0	6	0	0	8
St. Domingo, do.	0	0	5	0	0	7½
Do. Curls (good to prime)	0	0	9	0	1	3
Walnut, American (logs)	0	2	3	0	4	6
Do. do. (planks and boards)	0	2	0	0	7	6
Italian, per foot superficial	0	0	3	0	0	7½
Black Sea, per ton	6	0	0	12	0	0
Satin Walnut (logs) per foot cube	0	1	0	0	1	3
,, (planks and boards)	0	2	0	0	2	9
Sequoia (Californian redwood), per foot cube	0	1	9	0	2	0
Whitewood, American (logs)	0	1	3	0	1	6
,, ,, (planks and boards)	0	1	6	0	2	9
Quartered oak ,, ,, ,,	0	2	3	0	4	0
Kauri pine (logs)	0	1	9	0	2	0
,, ,, (planks)	0	2	3	0	2	9
Jarrah (planks)	0	2	0	0	2	3
Lancewood spars each, fresh and large	0	5	0	0	8	0
Lancewood spars, ordinary to fair	0	4	0	0	5	0
Degame spars	0	8	0	0	10	0

METALS.

IRON—Pig, in Scotland ton	3	4	11	0	0	0
Bar, Welsh, in London	9	0	0	9	15	0
Do. do. at works in Wales	8	10	0	9	0	0
Do. Staffordshire, in London	9	15	0	11	15	0
COPPER—British cake and ingot	75	15	0	76	15	0
Best selected	77	15	0	78	15	0
Sheets, strong	83	0	0	84	0	0
Chili bars	71	15	0	0	0	0
YELLOW METAL lb.		6¾d.			7d.	
LEAD—Pig						
Spanish ton	17	5	0	0	0	0
English Com. Brands	17	10	0	0	0	0
Sheet, English, 6 lbs. per sq. ft. and upwards	18	15	0	0	0	0
Pipe	19	5	0	0	0	0
ZINC—English sheet ton	26	0	0	0	0	0
Vieille Montagne	27	0	0	0	0	0
Spelter	20	5	0	20	7	6
TIN—Straits	103	5	0	0	0	0
Australian	103	10	0	104	0	0
English Ingots	107	0	0	108	0	0
Banca	0	0	0	0	0	0
Billiton	0	0	0	0	0	0

OILS.

Linseed ton	21	12	6	0	0	0
Cocoanut, Cochin	20	15	0	0	0	0
Do. Ceylon	26	15	0	0	0	0
Palm, Lagos	27	10	0	0	0	0
Rapeseed, English, pale	24	10	0	0	0	0
Do. Brown	23	0	0	0	0	0
Cottonseed ref.	19	10	0	20	0	0
Oleine	17	5	0	19	5	0
Lubricating U.S.	0	8	0	0	0	0
Do. Black	0	7	6	0	0	0
TAR—Stockholm barrel	1	6	6	0	0	0
Archangel	1	0	0	0	0	0
Turpentine	37	0	0	37	7	6

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

December 8.—By SWAFFIELD & SON (at Woburn).

Woburn, Beds.—The Union Workhouse, area 3 a. f. £3,000

December 11.—By KELF & STURT.

Walthamstow.—Lansdown-rd., Lansdown House, f., r. 52*l.* 470

51 and 53, Stainforth-rd., u.t. 93 yrs., g.r. 10*l.* 10s., r. 64*l.* 680

38 and 40, Jewel-rd., u.t. 96 yrs., g.r. 10*l.* 440

By HARMAN BROS.

Wyvenhoe, Essex.—Vine Villa, Keelers Tye, and Cockaynes Farms, 537 a. 2 r. 13 p., f. (including timber) £8,200

Stoke Newington.—2, Kersley-rd., u.t. 75 yrs., g.r. 7*l.* 385

Stamford Hill.—60, Darenth-rd., u.t. 83 yrs., g.r. 6*l.* 525

Clapton.—104, Clapton Common, u.t. 71 yrs., g r. 24*l.* 12s. 660

By MESSRS. GIBSONS.

Maida Vale.—239 Elgin-av., r. 65*l.*, and an i.g.r. 5*l.*, u.t. 60 yrs., g.r. 20*l.* 485

St. John's Wood.—21 and 27, Abbey Gardens, u.t. 40 yrs., g.r. 16*l.*, r. 92*l.* 905

By G. GOULDSMITH, SON, & CO.

Belgravia.—39, Wilton-cres., u.t. 24 yrs., g.r. 5*l.* 4,600

34, Chester-sq., u.t. 22½ yrs., g.r. 20*l.* 2,700

Chelsea.—14 and 15, Union-st., u.t. 21 yrs., g.r. nil 405

By BAXTER, PAYNE, & LEPPER.

Beckenham. — Westgate-rd., Kingsberg House, and about 1 acre, u t. 64 yrs., g.r. 40*l.* 2,000

By LEOPOLD FARMER.

St. John's Wood.—12, Bolton-rd., u.t. 58 yrs., g.r. 8*l.* 10s. 410

December 12.—By BEARD & SON.

Bayswater.—118, 120, 122, and 124, Queen's-rd., u.t. 38½ yrs., g.r. 28*l.*, r. 270*l.* 2,550

43, Bark-pl., u.t. 13½ yrs., g.r. 7*l.*, r. 45*l.* 300

By C. H. BROWN.

Vauxhall.—23, Auckland-st., u.t. 64¼ yrs., g.r. 5*l.*, r. 52*l.* 425

By RUTLEY, SON, & VINE.

Hampstead-rd.—29, Ampthill-sq., u.t. 43¼ yrs., g.r. 12*l.* 10s. 1,100

193, 195, and 197, Stanhope-st., u.t. 38¾ yrs., g.r. 9*l.* 19s., r. 185*l.* 1,790

Holloway.—211, Tufnell Park-rd., u.t. 67¼ yrs., g.r. 7*l.*, e.r. 50*l.* 535

By VICTOR VAUGHAN.

St. Pancras.—20 and 21, Little George-st., u.t. 10¾ yrs., g.r. 9*l.* 12s. 180

109, Drummond-st., u.t. 19¾ yrs., g.r. 4*l.* 350

By POWELL & POWELL (at Bath).

Bathford, Somerset.—Two enclosures of land, 4 a. 1 r. 1p., f. 800

Freehold house and 4 a. 3 r. 20 p. 750

Batheaston, Somerset.—Three cottages and 2 a. 2 r. 3 p., f. 355

Walcot, Somerset.—A perpetual annuity charge of 10*l.* 300

South Wraxall, Wilts.—Seven closes of land, 37 a. 0 r. 36 p., f. 1,000

By SCHOFIELD, EVANS, & LOADER (at Masons' Hall Tavern).

Brighton.—New-rd., &c., The Empire Palace of Varieties, and 30, Bond-st., part f. and part u.t. 52½ yrs., g.r.15*l.* ; also the Eden Theatre, u.t. 15½ yrs., r. 950*l.* 35,100

December 13.—By HOLCOMBE, BETTS, & WEST.

Maida Vale.—78, Warwick-rd., u.t. 75 yrs., g.r. 15*l.*, r. 55*l.* 460

By FRANK JOLLY & CO.

Bow.—11, 13, and 15, Robeson-st., u.t. 63 yrs., g.r. 9*l.* 635

37, 39, and 41, Robeson-st., u.t. 63 yrs., g.r. 9*l.* 630

By RANDALL, COX, & BAKER.

Finchley.—29 and 31, Lincoln-rd., f., r. 60*l.* 765

By WAGSTAFF & SONS.

Holloway.—64, Holloway-rd., f., e.r. 50*l.* 1,010

Highbury.—37, Drayton Pk., f., e.r. 55*l.* 900

Stroud Green.—20, Osborne-rd., u.t. 68 yrs., g.r. 7*l.* 10s., e.r. 45*l.* 425

By PROTHEROE & MORRIS.

Leigh-on-Sea, Essex.—Leigham Court-drive, five plots of land, f. 150

Herne Bay, Kent.—The Grand Drive, five plots of land, f. 250

By SWAN WOODCOCK (at Stratford).

Stratford.—1 and 3, Blenheim-rd., u.t. 79 yrs., g.r. 10*l.* 360

6, Argyle-rd., u.t. 79 yrs., g.r. 5*l.* 10s. 340

Leyton.—16, Westdown-rd., u.t. 80 yrs., g.r. 4*l.* 4s. 180

4, Warren-rd., u.t. 89 yrs., g.r. 3*l.* 15s. 250

December 14.—By H. J. BLISS & SONS.

Bethnal Green.—25 and 27, Quilter-st., u.t. 25¼ yrs., g.r. 8*l.* 8s. 400

30, Elwin-st., u.t. 22½ yrs., g.r. 4*l.* 10s. 200

By CHESTERTON & SONS.

Kensington.—91, Abingdon-rd., u.t. 61½ yrs., g.r. 7*l.*, e.r. 65*l.* 830

Fulham.—11 and 13, Lodge-av., u.t. 80 yrs., g.r. 9*l.* 14s. 410

By J. & R. KEMP & CO.

Bayswater.—47, Leinster-sq., u.t. 52 yrs., g.r. 21*l.*, r. 104*l.* 1,385

By C. C. & T. MOORE.

Clapton.—25, Median-rd., f., r. 32*l.* 480

Hackney.—23, Crawley-rd., u.t. 54 yrs., g.r. 6*l.*, r. 40*l.* 475

Limehouse.—36, Piggott-st., u.t. 36 yrs., g.r. 5*l.* 5s., r. 36*l.* 360

Bow.—5, 7, 9, and 11, Strahan-rd., u.t. 41¾ yrs., g.r. 21*l.*, r. 134*l.* 1,130

Old Kent-rd.—16 and 18, Marlborough-rd., f. 1,010

By MULLETT, BOOKER, & CO.

Hyde Park.—39, Connaught-sq., and 11, Frederick Mews, u.t. 20¼ yrs., g.r. 13*l.* 8s., r. 130*l.* 1,310

By FAREBROTHER, ELLIS & CO.

Upton Park.—1, 3, 9, and 11, Harold-rd., u.t. 59 yrs., g.r. 24*l.* 950

Bayswater.—154, Westbourne-ter., u.t. 42 yrs., g.r. 5*l.*, r. 130*l.* 1,350

Richmond, Surrey.—6, Water-lane, c. and part f., r. 16*l.* 235

35, Worple-way, c., r. 13*l.* 110

By NEWBON, EDWARDS, & SHEPHARD.

Holloway.—15, Junction-rd., f., r. 90*l.* 2,000

24, Windsor-rd., u.t. 52 yrs., g.r. 5*l.* 5s., r. 37*l.* 380

8, Hargrave-pk., u.t. 62 yrs., g.r. 7*l.* 7s., e.r. 45*l.* 390

1, 3, and 5, Sheringham-rd., u.t. 63 yrs., g.r. 18*l.* 18s., r. 102*l.* 1,025

Stratford.—167, Major-rd., f. 440

Hoxton.—4 and 6, Trinity-pl., u.t. 43 yrs., g.r. 8*l.* 8s., r. 68*l.* 630

Islington.—Elmore-st., i.g.r. 36*l.*, u.t. 53 yrs., g.r. 5*l.* 650

Kentish Town.—Leverton-st., i.g.r. 26*l.*, u.t. 56 yrs., g.r. 10*l.*, with reversion for 10 yrs. 410

Camden Town.—High-st., i.g.r. 37*l.* 18s., u.t. 12 yrs., g.r. 15*l.* 195

Canonbury.—55, St. Paul's-rd., u.t. 37 yrs., g.r. 7*l.*, e.r. 54*l.* £400

Stoke Newington.—20, Warwick-rd., u.t. 60 yrs., g.r. 5*l.*, r. 30*l.* 330

December 15.—By PERCIVAL HODSON.

Shoreditch.—32, Kingsland-rd., f., r. 60*l.* 1,240

1 to 5, Bernales-buildings, area 3,700 ft., f. 1,100

Holloway.—92, Carleton-rd., u.t. 66 yrs.. g.r. 10*l.*, r. 65*l.* 705

By JONES, LANG, & CO.

Marylebone.—306 and 308, Marylebone-rd., area 3,400 ft., f., r. 100*l.* 2,500

By MARK LIELL & SON.

Bow.—60, 62, and 64, Morville-st., u.t. 48¼ yrs., g.r. 10*l.* 10s. 685

100, Fairfield-rd., f., r. 40*l* 650

Plaistow.—64, 66, 68, and 70, Chesterton-rd., f. .. 845

By C. C. & T. MOORE.

Old Ford.—16, Autumn-st., f. 200

Mile End.—48 to 60 (even), Cephas-st., u.t. 30½ yrs., g.r. 16*l.* 11s. 2,420

11, Nicholas-st., u.t. 30½ yrs., g.r. 6s., r. 32*l.* 350

35 and 36, St. Peter's-rd., u.t. 30½ yrs., g.r. 6*l.* 16s., r. 66*l.* 650

128, Devonshire-st., u.t. 36½ yrs., g.r. 2*l.* 270

Canning Town.—178 to 189, Victoria Dock-rd., u.t. 58 yrs., g.r. 67*l.* 4s. 2,050

By HARDS & BRADLY.

Greenwich.—39, 41, 43, and 45, Tyler-st., f. 1,070

41 to 47 (odd) and 51, Royal Hill, f., r. 153*l.* .. 2,340

37, Norman-rd., f. 240

Catford.—5, Faversham-rd., u.t. 90½ yrs., g.r. 5*l.* 10s., r. 28*l.* 265

Blackheath.—Prince's-rd., i.g.r. 20*l.*, u.t. 62 yrs., g.r. nil 300

By ALEX. ROBERTSON.

Newington.—23 to 33 (odd), Ralph-st., u.t. 22 yrs., g.r. 30*l.*, r. 180*l.* 1,035

83, Union-rd., and 31, 32, and 33, Union-sq., u.t. 44 yrs., g.r. 19*l.* 15s., r. 134*l.* 1,210

Walworth.—35, 37, 39, 41, and 43, Townley-st., f. 1,170

By A. J. SHEFFIELD.

Poplar.—158 to 170, 176 to 182 (even), Abbott-rd., u.t. 73½ yrs., g.r. 54*l.* 3,025

Canning Town.—75 to 89, 99 to 105, 117 to 123 (odd), 94, 96, 100 to 112 (even), Ford's Park-rd., u.t. 998 yrs., g.r. 131 5s. 4,355

***Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.**

TO CORRESPONDENTS.

W. P. I., T. O. V. (Below our limit).—T. C. H. & Son (Amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article is given subject to the approval of the article, when written, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is given, nor any list in which the lowest Tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ABERDEEN.—For additions to the Fish Market, for the Town Council. Mr. R. G. Wilson, architect, 181A, Union-street, Aberdeen. Quantities by the architect:—

Carpentry.

Geo. Jamieson, Woodside, Aberdeen	£2,290	0	0

Building.

Beattie & Son, Aberdeen	839	8	6

Plastering.

Sellar & Co., Aberdeen	593	0	0

Plumbing.

Blaikie & Sons, Aberdeen	439	0	0

Slating.

Forbes Morrison, Aberdeen	348	15	6

Painting.

John Williamson, Aberdeen	147	17	6
	£4,663	1	6

BIRSTALL (Yorks).—For the construction of sewerage works for the District Council. Mr. J. J. Longden, working surveyor. Plans and quantities by Mr. Thos. H. Burrell, accountant, &c., to Council:—

T. Rowland	£479	12	0
Cutler, Haywood, & Co.	401	19	0
S. Brooks	391	0	0
A. Yates	£367	3	3
J. Farrar	350	0	0
Akeroyd & Sons, Birstall*	333	6	6

BOSSINGTON (Hants).—For the erection of a pair of cottages, for Mr. W. H. Deverell. Mr. Thomas Stopher, architect, 57, High-street, Winchester. Quantities by architect:—

Annett	£699	0	
Beale	666	0	
Hatcher	657	0	
Grace	648	0	
Bell	£645	0	
Palmer	627	15	
Read & Sons, Romsey*	560	0	

[*See also next page.*

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Drawings and Designs for Proposed Church and Vicarage	Barnsley Corp.	50 gns.; 30 gns. and 20 gns.	Feb. 12
*Designs for New Municipal Buildings	Walsal Corp.	100*l.*	Mar. 31

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
*Erection of School	Guildford Sch. Bd.	A. J. Sturgess, 25, High-st. Guildford	Dec. 27
Warehouses, Hanson-st. Blackburn	———	Cheers & Smith, Archt. 24, Richmond-terrace, Blackburn	do.
Granite Channelling	Ramsgate T.C.	T. G. Taylor, Boro Surv. Broad-st. Ramsgate	do.
Street Improvement Works, Hornby-avenue	Bootle (Lancs.) Corp.	Boro Engr. Town Hall	do.
Shelter, Abbot Hall Recreation Ground	Kendal T.C.	R. H. Clucas, C.E. Town Hall	Dec. 29
Five Houses, Hough-lane, Bramley, Leeds		Wm. Shackleton, Archt. 2, Somerset-rd. Pudsey	do.
Workshops, &c. London-road, Carlisle	J. Tiffen	H. H. Hodgkinson, Archt. Scotch-st. Carlisle	do.
Two Villas, Llanbadarn-road, Aberystwyth	T. Owen	J. A. Jones, Archt. 7, Queen's-terrace, Aberystwyth	Dec. 30
Offices, &c.	Newcastle-on-Tyne Sch. Bd.	W. H. Knowles, Archt. 37, Grainger-st. Newcastle	do.
Iron Tubular Fencing, &c.	Donington (Lincs.) P.C.	A. G. Fletcher, Council Offices, Donington	do.
Tramcar Bodies	Manchester Corp.	J. M. M'Elroy, Town Hall	do.
Street Improvements, Beach-avenue, &c.	Whitley (Northumberland) U.D.C.	J. P. Spencer, C.E. North Shields	do.
Sewerage Works, Pembroke Dock	Pembroke T.C.	Beesley, Son, & Nichols, Engr. 11, Victoria-street, S.W.	Jan. 1
Wood Paving Blocks	Bristol Corp.	T. H. Yabbicom, C.E. Town Hall	do.
Enlarging Workshop, Fleet	Belper Sch. Bd.	Hunter & Woodhouse, Archt. Belper	do.
Station Buildings, Carndonagh, Ireland	Derry & Lough Swilly Ry. Co.	F. Dawson, Shipquay-st. Bldgs. Londonderry	do.
Villa and Stables, Grove-st. Morecambe	Mrs. Emary	A. L. Lang, Archt. 12A, Pedder-st. Morecambe	do.
Granite or Basalt Road Metal	Hastings Corp.	P. H. Palmer, C.E. Town Hall	do.
*Construction of Underground Conveniences	Bromley U.D.C.	Surv. Council Offices, Bromley, Kent	Jan. 2
*Construction of Concrete Settling Tank	Sheffield United Gas Light Co.	J. W. Morrison, at the Co.'s Offices, Commercial-st. Sheffield	do.
Three Shops and House, Old-street, Ashton-under-Lyne		George & Son, Old-square, Ashton-under-Lyne	do.
Additions to Whitevale Depot	Glasgow Corp.	J. Young, 88, Renfield-st. Glasgow	do.
Public Baths, Hathershaw	Oldham Corp.	S. A. Pickering, C.E. Town Hall	do.
*Supply and Delivery of Road Materials	Acton D.C.	D. J. Ebbetts, 242, High-st. Acton	do.
Sewering, &c. Servia-road	Litherland (Lancs.) U.D.C.	W. B. Garton, Surv. 25, Sefton-rd. Litherland	Jan. 3
Hospital, Clybebyll, nr. Pontardawe	Hospital Committee	J. Morgan, Surv. Herbert Chmbrs. Pontardawe	do.
*Erection of Laundry Buildings, &c.	St. Pancras Gdns.	Salter, Issott, & Salter, 13, Phœnix-street, St. Pancras	Jan. 4
Pair Houses and Four Others, Bessingby Estate, Bridlington Quay	A. G. W. Wright	J. Earnshaw, Archt. Carlton House, Bridlington Quay	do.
*Supply and Erection of Costermonger's Stalls	Boro. of Shoreditch	J. R. Dickson, Vestry Town Hall, Old-st. E.C.	do.
Sewerage Works, St. Stephen's-road	Cheltenham Corp.	E. T. Brydges, Municipal Offices	Jan. 6
Hospital Buildings, &c.	Swindon & District Hospital Bd.	Halliday & Rodger, Archt. 14, High-st. Cardiff	do.

CONTRACTS—*Continued.*

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c. Supplied by	Tenders to be delivered.
Additions to Workhouse	Birmingham Union	W. H. Ward, Archt. Paradise-st. Birmingham	Jan. 6
*Extension of Market Buildings	Boro. of Oswestry	G. W. Lacey, Guildhall, Oswestry	Jan 8
Service Reservoir	Abingdon R.D.C.	G. Winship, C.E. Borough Buildings	do.
Bandstand, &c. Grand Parade	Eastbourne Corp.	R. M. Gloyne, C.E. Town Hall	do.
Schools, Millbridge	Liversedge Sch. Bd.	A. E. Rhodes, Archt. Cemetery-rd. Heckmondwike	Jan. 9
Additions, Court House, Llangollen School, Heamoor, Cornwall	Madron Sch. Bd.	County Surv. Denbigh O. Caldwell, Archt. Penzance	do. Jan. 10
*Disinfecting House	Lambeth Vestry	S. R. J. Smith, 14 & 15, York-bldgs. Adelphi, W.C.	do.
*Heating and Ventilation of Schools	Horsham S.B.	W. Buck, North-street, Horsham	Jan. 11
*Erection of Post and Inland Revenue Offices	H.M. Office of Works	Post Master, Preston	do.
Masonic Hall, Kilkeel, Ireland		W. Monteith, Kilkeel, co. Down	Jan. 13
*Workhouse Extension	Grimsby Union	H. C. Scaping, Court-chmbrs. Gt Grimsby	Jan. 15
Iron Girder Bridge, Conwil	Carmarthen R.D.C.	R. Browne, 7, Hall-street, Carmarthen	do.
Electricity Station, Craven-st.	Birkenhead Corp.	C. Brownridge, Town Hall, Birkenhead	Jan. 16
Police Station, &c. Chadderton, near Oldham	Standing Joint Com.	H. Littler, Archt. County Offices, Preston	do.
*Foundations, &c. for New Infirmary	Wiliesden Gdns.	A. S. Snell, 22, Southampton-bldgs. Chancery-lane, W.C.	Jan. 17
*Construction of New Road, &c.	———	L. M. Hogbin, Birchington	Jan. 19
*Construction of Iron Bridge	———	W. A. Valon, Hardres-st. Ramsgate	do.
*Erection of Nurses' Home, &c.	Sheffield Union	Union Offices, Westbar, Sheffield	Jan. 20
*Construction of Sewers	Uxbridge R.D.C.	J. Austin, 10, Marchwood-crescent, Ealing	Jan. 22
Hotel, Prittlewell, Southend-on-Sea	J. Berry	Greenhalgh & Brockbank, Archt. Bank-chambers, Southend-on-Sea	No date
Two Houses, Leopold-st. Leeds	———	T. Philpotts, 5, Leopold-rd. Leeds	do.
Business Premises, Saville-st. North Shields	J. Black	Hope & Maxwell, Archt. New Bridge-st. Newcastle-on-Tyne	do.
Rebuilding White Swan Inn, Styrrup, Notts.	Worksop & Retford Brewery Co.	Vallance & Westwick, Archt. White Hart-chmbrs. Mansfield	do.
Street Works, Newmarket-rd. Waterloo	Limehurst R.D.C.	S. E. Kettlewell, Surv. Council Offices, Limehurst, Ashton-under-Lyne	do.
*Erection of Dwellings, &c.	Boro. of Shoreditch	R. Plumbe, 13, Fitzroy-sq. W.	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in.
*Building Inspector	City of Bristol	120*l.* per annum rising to 150*l.*	Dec. 28
*Clerk of Works (2)	Ilford Sch. Bd.	3 gns. per week	do.
*District Surveyor & Junior Assistant	Sheffield Corp.	230*l.* per annum and 80*l.* per annum	Dec. 29
*General Foreman	Walthamstow U.D.C.	2*l.* 10*s.* weekly	do.
*Building Foreman	do.	3*l.* 3*s.* weekly	do.
*Surveyors for Quinquennial Valuation	Deptford Vestry		Jan. 1
*Resident Engineer	Barking Town U.D.C.	4*l.* per week	Jan. 2
*Assistant Sanitary Inspector	Wandsworth B. of W.	2*l.* 2*s.* per week, rising to 3*l.* 5*s.*	do.
*Architectural Assistant	Cnty. Boro. of Cardiff	2*l.* 7*s.* 6*d.* per week	Jan. 10

Those marked with an asterisk (*) are advertised in this Number. ***Competitions, p.*** iv. ***Contracts, pp.*** iv. vi. viii. x. & xvi. ***Public Appointments, pp.*** xvb. & xvi.

BARRY (Glam.).—For the execution of private street works, Oxford-street, &c., for the Urban District Council. Mr. J. C. Pardoe, C.E., Council Offices, Holton-road, Barry:—

Oxford-street.

George Rutter, Barry*	£426 5 11

Cambridge-street.

Collins & Co., Barry*	313 1 6

Kathleen-street.

George Rutter, Barry*	488 6 4

Everard-street.

Barry Building and Contracting Society, Limited, Barry*	823 10 7

Tydfil-street.

Barry Building and Contracting Society, Limited, Barry*	558 16 1

Wynd-street.

Barry Building and Contracting Society, Limited, Barry*	338 4 11

Rectory-road.

Barry Building and Contracting Society, Limited, Barry*	204 0 7

Lane rear of Dock View-road.

Barnes, Chaplin, & Co., Cardiff*	69 5 0

Lane rear of Jewel-street.

Barnes, Chaplin, & Co., Cardiff*	52 14 0

BURTON-ON-TRENT.—For the erection of artisans' dwellings at Horninglow, for the Burton-on-Trent Artisans' Dwellings Co., Limited. Mr. Thomas Jenkins, architect, 35, High-street, Burton-on-Trent:—

No. 3 Contract.

Henry Edwards*.....£10,950

EAST KIRKBY (Notts).—For the erection of pumping station, reservoir, cottage, &c., for the Urban District Council. Mr. W. H. Radford, C.E., Angel-row, Nottingham:—

John Holme	£5,087 8 6	Hy. Shardlow	£3,350 0 0
Bower Bros.	4,580 0 0	Lane & Son, Skegby*	3,289 13 0
A. G. Bell	4,242 11 0		
J. F. Price	4,000 0 0		

DARTON (Yorks).—For the construction of sewerage and sewage disposal works, for the Urban District Council. Mr. W. H. Radford, C.E., Angel row, Nottingham:—

John Bentley	£17,448 8 6	Graham & Sons	£11,150 0 0
J. C. Haller	16,615 12 0	W. & J. L. Foster	11,065 17 0
R. Turner	13,325 0 0	M. Arundel	10,615 19 3
G. Mellor	13,094 0 0	H. E. Buckley	10,472 19 2
R. Walker	13,059 0 0	J. & M. Hawley	10,382 4 6
W. Binns	12,923 0 0	Young & Co., 32, Doncaster-road, Wakefield*	10,145 16 11
J. & T. Binns	12,849 18 8	H. H. Barry	10,000 0 0
Underwood & Bro.	11,751 0 0		
Burrows & Sons	11,649 10 0		
G. W. Swift	11,618 0 0		
Bower Bros.	11,400 0 0		

EBBW VALE (Mon.).—For altering and adding to premises for the purposes of a cottage hospital. Messrs. Lansdowne & Griggs, architects, Metropolitan Bank-chambers, Newport, Mon. Quantities by architects:—

D. J. Davies	£1,788	Davis & Sons	£1,642
John Morgan	1,738	John Linton	1,631

FARNBOROUGH.—For the construction of a filter-bed at sewage farm, for the Urban District Council. Mr. R. Walter Knapp, surveyor, Town Hall, Farnborough:—

M. Bateman	£130 0	C. E. Morton, Windsor-road, Farnborough*	£102 0
W. Norris	124 18		
T. Turner	105 15		

FRINTON-ON-SEA.—For the erection of a detached villa, for Mr. W. H. Trewartha James. Messrs. Homer & Co., architects, Frinton-on-Sea:—

F. B. Pitcher*.....£845

FRINTON-ON-SEA.—For additions to house, for Mr. F. Saunderson. Messrs. Homer & Co., architects, Frinton-on-Sea:—

F. B. Pitcher.....£101

FRINTON-ON-SEA.—For the erection of eleven villas, for Mr. N. P. Cooper. Messrs. Homer & Co., architects, Frinton-on-Sea. Quantities by G. Silvester, 46, Strand, W.C.:—

Potter	£8,573	Lingell	£8,084
West	8,481	Abbott	7,562
Dupont	8,344		

FRINTON-ON-SEA.—For the erection of a villa, for Mr. A. Paterson. Messrs. Homer & Co., architects, Frinton-on-Sea:—

H. J. Lingell*.....£675

FRINTON-ON-SEA.—For the laying of a sewer in Third Avenue, for Mr. R. P. Cooper. Messrs. Homer & Co., surveyors, Frinton-on-Sea:—

		Hydraulic Test.
G. Abbott	£397	£437
A. Anderson	345	375
F. B. Pitcher	313	365
Dupont & Co.	330	359
H. J. Lingell	309	342

FRINTON-ON-SEA.—For the erection of a detached villa, for Mr. A. H. Paton. Messrs. Homer & Co., architects, Frinton-on-Sea. Quantities by Mr. G. Silvester, 46, Strand, W.C.:—

Anderson	£1,228	Pitcher	£1,023
Dupont	1,100	West	975
Lingell	1,075	Abbott	911

GEDNEY (Lincs.)—For the erection of school buildings for the School Board. Mr. R. H. Holmes Hand, architect, Spalding. No quantities supplied:—

Hipwell & Co.	£980	J. R. Bateman, Sutton Bridge*	£930
Salop & Bone	938		

GREAT BERKHAMPSTEAD.—For making-up, &c., part of Charles-street, for the Urban District Council. Mr. E. H. Adey, surveyor, Shrublands-terrace, Berkhampstead:—

Siddons & Freeman, Oundle*.....£609

GREAT CROSBY (Lancs).—For the erection of walls, &c., Liverpool-road and Cook's-road, for the Urban District Council. Mr. Watkin Hall, C.E., Council Offices, Great Crosby:—

Liverpool-road wall.

James Bates, Blundellsands*.....£85 10

Cook's-road wall.

W. Mulholland, College-road, Great Crosby*..£67

HARROGATE.—For draining, levelling, &c., Victoria-avenue, for the Corporation. Mr. Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate:—

H. Barker, Church-square, Harrogate*..£345 1 6

GRIMSBY.—For the execution of road works, Cole-road (Contract No. 11), for the Cleethorpes-with-Thurnscoe Urban District Council. Mr. Egbert Rushton, C.E., and surveyor, Poplar-road, Cleethorpes. Quantities by Engineer :—

T. R. Waterman	£499 5 0	H. Good	£339 19 4
G. Brown	344 11 9½	T. Wilkinson, Highgate, Cleethorpes*	339 4 9
H. Holmes	344 9 10		

[Surveyor's estimate, £325 8 6.]

HASLEMERE.—For the erection of a detached residence, for Captain Lugard. Mr. J. Williams Dunford, architect, 100c, Queen Victoria-street, E.C. :—

Chapman & Lowry	£2,010	Carpenter	£1,903
Milton	1,992	Tompcett	1,725
Wood	1,924		

LEEDS.—For additions to St. George's Church. Mr. H. Walker, architect, 8, Upper Fountaine-street, Leeds. Quantities by architect :—

Joinery.—Jas. Taylor, Guiseley*	£2,059 0 0
Masonry and Brick.—Wilson & Sons, Leeds*	2,007 13 0
Plumbing.—J. Lindley, Leeds*	295 0 0
Plastering.—J. P. Mountain, Leeds*	30 0 0
Slating.—J. Atkinson, Leeds*	134 0 0
	£4,525 13 0

LEICESTER.—For new cemetery, Leicester. Messrs. Goddard & Co., architects :—

J. O. Jewsbury	£26,597 0 0	Herbert & Sons	£23,527 0 0
Hardington & Elliott	24,650 0 0	Bradshaw Bros.	22,741 15 6
Hutchinson & Son	24,600 0 0	Riddell & Sons*	22,389 0 0
T. Herbert	23,951 0 0	Moss & Son, Ltd.	20,600 0 0

LEYTONSTONE.—For the erection of stables and coachhouses at Fillebrooke-road, for Mr. James Powell. Mr. J. Williams Dunford, architect, 100c, Queen Victoria-street, E.C. :—

Lawrence	£939	Gillingham	£690
Selby	789		

LONDON.—For a new police-station at Sheperdess-walk, for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, architect. Quantities by Mr. W. H. Thurgood :—

Holloway	£15,378	Lathey Bros.	£14,520
Pattinson	15,260	Lawrance	14,223
Simpson	14,998	Kilby & Gayford	13,998
Higgs & Hill	14,940	Williams	13,423
Scrivener	14,857	Grover & Son	13,419
Lascelles	14,805	F. & H. Higgs	12,910
Perry & Co.	14,780	Hall, Bedall	—

LONDON.—For the erection of shop, warehouses, stabling, &c., at Holloway-road, N., for Messrs. Williams Bros. Mr. Alfred Roberts, architect, 18, Nelson-street, Greenwich, S.E. :—

Stevens Bros.	£7,448	F. & H. F. Higgs	£7,177
Patman & Fotheringham	7,191	Dearing & Son	6,993
Holliday & Greenwood	7,177	Dove Bros.	6,980
		Grover & Son	6,889
		Lole & Lightfoot*	6,798

LOUGHBOROUGH. — For sewering, metalling, &c., three new streets, Old Nursery Estate. Mr. A. E. King, architect, Baxter-gate, Loughborough :—

Barker & Son	£1,490	Main, Kendall, & Main, Loughborough*	£1,295
Orton	1,404		
Tomlinson	1,315		
Ball	1,300		

MARKET HARBOROUGH.—For the erection of an infirmary, for the Union Guardians. Messrs. R. J. & J. Goodacre, architects, Friar-lane, Leicester. Quantities by architects :—

J. Main	£3,688 14 8	A. Faulkes	£3,050 0 0
Riddett & Son	3,654 0 0	T. Hickmar	2,991 12 0
E. Fox	3,599 10 0	T. Barlow	2,985 0 0
Tate & Eastwood	3,178 16 8	Lewin & Son	2,985 0 0
J. Hufford	3,173 14 5	G. L. Martin, Market Harborough*	2,968 0 0
Moss & Son	3,154 0 0		

MORECAMBE.—For widening roads, &c., Heysham, for the Urban District Council. Mr. W. Atkinson, surveyor, Council Offices, Heysham, Morecambe :—

L. Farrer	£2,014 4 6	R. Escolme	£1,695 0 3
Nicholls & Son	1,911 9 0	Ernest Ireland, Morecambe*	1,586 3 1
R. Bateson	1,821 0 0		

PONTEFRACT.—For the erection of two villas, Beech-wood-avenue. Mr. Wm. Hurst, architect, Pontefract :—

Bricklaying and Masonry, &c.—Walker & Ward*	£358 15 0
Carpentry & Joinery.—Barker & Jowitt*	200 0 0
Plumbing, Glazing, &c.—T. Long*	78 11 6
Plastering.—T. W. Senior*	49 0 0
Slating.—Stewart & Sons*	39 17 6
Painting.—Burton & Son*	16 0 0
Walker & Ward (complete tender)	793 4 0

[All local contractors.]

The proprietor, Mr. Hurst, providing railing and gates, also ranges, stoves, &c. Macfarlane tender, £20, accepted for railing and gates.

PORTISHEAD (near Bristol).—For the erection of "Rostock Haus" for Mrs. Cole. Mr. T. J. Moss Flower, C.E., and Surveyor, Scottish Buildings, Bristol, and 28, Victoria-street, Westminster :—

J. Woolford, Portishead*	£635

Repairs to Buildings on the Schedule of Prices.

GREENWICH.—Groups 1 and 2.
MARYLEBONE.—Groups 1 and 2.
TOWER HAMLETS.—Group 1.

Names of Contractors.	Greenwich.		Marylebone.		Tower Hamlets.
	Group 1.	Group 2.	Group 1.	Group 2.	Group 1.
*S. H. Corfield — Percentage on Schedule	—	—	—	—	+25 p.c.
*W. Densham & Sons	—	—	+20 p.c.	+20 p.c.	—
A. W. Derby	—	—	—	—	+30 p.c.
F. Hodgson & Co.	—	—	+33⅓ p.c.	×33⅓ p.c.	—
E. Jackson & Son	—	—	—	—	+25 p.c.
Johnson & Co.	—	—	—	—	+50 p.c.
Jones & Groves	+33⅓ p.c.	+33⅓ p.c.	—	—	—
G. Kemp	+33⅓ p.c.	+33⅓ p.c.	—	—	—
J. Kybett	—	—	—	—	+25 p.c.
Marchant & Hirst	—	—	+30 p.c.	×40 p.c.	—
*E. Proctor	+20 p.c.	+20 p.c.	—	—	—
Stevens Bros.	—	—	+27½ p.c.	+27½ p.c.	—
A. E. Symes	+45 p.c.	+45 p.c.	—	—	+27½ p.c.
Thompson & Beveridge	—	—	+25 p.c.	+25 p.c.	—

RAUNDS (Northants).—For the erection of six houses, Marshall-road, for Messrs. Robinson & Northern. Mr. Harry Knight, surveyor, Newton-road, Rushden. Quantities by surveyor :—

Smith & Son	£1,606 10	Dickens Bros.	£1,560 0
W. H. Lovell	1,573 0	J. Lawrence, Raunds*	1,292 10
J. M. Moore	1,568 0		

RHONDDA (Glamorgan).—For additions to isolation Hospital, Ystrad, for the Urban District Council. Mr. W. D. Morgan, architect, 23, St. Mary-street, Cardiff. Quantities by the architect :—

Jenkins & Son	£9,996	Thomas & Co., Cardiff*	£9,199
W. E. Willis	9,238		

RUSHDEN.—For erecting two houses at Rushden, for Mrs. Marlow. Mr. H. Knight, architect and surveyor, Rushden. Quantities by surveyor :—

R. Marriott	£495 0	H. Sparrow	£465 0
C. E. Bayes	486 0	Dickens Bros.	465 0
T. Willmott	479 0	W. Packwood†	456 5
T. Swindall	469 0		

RUSHDEN.—For the erection of additions to boot factory at Rushden, for Messrs. Crick & Patenall. Mr. H. Knight, architect and surveyor, Rushden. Quantities by surveyor :—

Hacksley Bros.	£915 0	T. Swindall	£852 10
Whittington & Tomlin	869 0	T. Willmott	839 10
H. Sparrow	854 0	E. Mitchell	835 0
		Wm. Packwood*	799 0

SCARBOROUGH.—For the erection of boundary walls, &c., St. Nicholas House and Gardens, for the Town Council. Mr. H. W. Smith, Borough Engineer, Town Hall, Scarborough :—

A. Lyons	£526 7 5	W. T. Petch	£374 12 4
J. Wilson	458 18 6	Bastiman & Sons, Victoria-road, Scarborough*	344 11 0
Coultas & Hovington	457 12 10		
J. Barry	438 0 0		

SUTTON (Surrey).—For the construction of pipe sewers, &c., for the Urban District Council. Mr. C. Chambers Smith, Surveyor, Public Offices, Sutton :—

R. W. Swaker	£1,542 0 0!	W. H. Wheeler	£763 6 8
G. Osenton	1,117 0 0	W. Jenner, High-street, Sutton*	711 8 9!
E. Vaughan	957 0 0		
Free & Sons	918 18 9		

WALTHAMSTOW.—For the erection of a pair of semi-detached residences at Forest-road for Mr. James Pritchard. Mr. J. Williams Dunford, architect, 100c, Queen Victoria-street, E.C. :—

S. J. Scott	£2,132	E. Fuller	£1,995
W. Lawrence	2,018	Reed, Walthamstow*	1,832

WEST HAM.—For supplying and fitting up the Union Workhouse and Schools with fire mains, hydrants, and accessories, for the West Ham Board of Guardians. Mr. J. Williams Dunford, architect, 100c, Queen Victoria-street, E.C. :—

Shand, Mason, & Co.*	£2,186 9

LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board, the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect:—

ADYS-ROAD.—Providing and fixing two new sectional boilers with flue pipe, &c.; providing new feed tank for apparatus, with ball valve, overflow; lowering boiler-room floor and providing new concrete base for boilers; providing and fixing new flow and return mains to drawing class-room, including new air pipe, and overhauling apparatus; covering boilers and all flow and return pipes (existing and new) in boiler-room and basement to economise fuel :—

J. Esson	£398 0	Kite & Co.	£250 0
Cannon & Sons	375 0	The Brightside Foundry and Engineering Co., Ltd.	245 0
Wippell Bros. & Row	372 0	G. & E. Bradley	237 0
J. & F. May	334 0	Russell & Co.	223 15
J. Grundy	330 0	Price Lea & Co.	219 0
Duffield & Co.	290 0	Knight & Sons*	196 0
J. Gray	288 0		

BERNER-STREET.—Repairing Stoves :—

Wontner-Smith, Gray, & Co.	£90 0	Hendry & Pattisson, Limited	£49 10
Coules & Son	67 0	Lander & Co.*	38 10
Cannon & Sons	60 0	J. Bond	24 15
Rockhill Bros.	56 5		

BROAD-STREET.—Providing and fixing new mains in connexion with existing low-pressure hot-water apparatus :—

J. Esson	£98	Vaughan & Brown, Ltd.	£55
Cannon & Sons	82	Morris & Co.	51
Price Lea & Co.	79	Wenham & Waters, Ltd.	45
Kite & Co.	75	W. Simmons*	43

CAMPBELL-STREET.—Providing and fixing a low-pressure hot-water apparatus for auxiliary warming to three halls, two class-rooms and corridors on ground, first, and second floors :—

G. Davis	£330	Jones & Attwood	£245
Tomlinson & Milan, Ltd.	290	Harlow & Son	237
Stevens & Sons	246	Knight & Sons*	236
		A. J. Kallaway	195

CATHERINE-STREET.—Providing and fixing new boiler and overhauling apparatus :—

Berry & Sons	£159 0 0	Price Lea & Co.	£145 0 0
J. Esson	153 10 0	Wontner-Smith, Gray, & Co.	144 12 6
Wenham & Waters, Ltd.	151 0 0	Strode & Co.	127 0 0
J. & F. May	150 0 0	Vaughan & Brown, Ltd.*	121 0 0
J. Grundy	148 0 0		

GROUP 3.—Repairs to heating apparatus on the schedule of prices :—

	Per cent. on Schedule Prices.
J. & F. May	+ 65
Duffield & Co.	+ 45
Wontner-Smith, Gray, & Co.	+ 35
G. & E. Bradley	+ 22½
Defries & Sons, Ltd.	+ 20
The Brightside Foundry and Engineering Co., Ltd.	+ 15
Cannon & Sons	+ 15
Kite & Co.*	+ 7½

HOMERTON COLLEGE.—Providing and fixing an iron landing and staircase :—

McDowall, Steven, & Co., Limited	£226 0
The St. Pancras Iron Work Company, Limited	155 0
Hayward Bros. & Eckstein, Limited*	126 10

HUGON-ROAD. — Enlargement—boys, 138; girls, 138; infants, 138; total, 414. Providing new staircases, one for boys and one for girls; providing additional cloak-rooms and lavatories for all departments, and extending corridors :—

C. Wall	£6,984 0 0	J. Marsland	£6,331 0 0
T. L. Green	6,934 0 0	Leslie & Co., Ltd.	6,305 12 6
Wall & Co.	6,910 0 0	Treasure & Sons	6,166 0 0
Miskin & Sons	6,485 0 0	Stimpson & Co.*	6,000 0 0

KENNINGTON-ROAD. — Enlargement—boys, 150; girls, 150; infants, 150; total, 450. Providing new staircase for boys; additional cloak-room accommodation for all departments, boys' teachers' room, stock-room and lavatory for boys, extending corridors, and providing demonstration table in boys' and girls' existing class-room :—

Johnson & Co.	£6,348	Johnson & Co., Ltd.	£5,709
Williams & Son	6,336	White & Co.	5,600
W. Smith	3,992	J. & C. Bowyer	5,527
J. & M. Patrick	5,969	Garrett & Son	5,481
F. & H. F. Higgs	5,949	Edwards & Medway	5,387
Bulled & Co.	5,913	J. Appleby*	5,082
W. Downs	5,738		

LAVENDER HILL SCHOOL.—Cleaning interior of old portion :—

Spencer, Santo, & Co., Ltd.	£358 0 0	Garrett & Son	£180 0 0
R. S. Ronald	260 0 0	Star & Son	180 0 0
E. Flood	191 0 0	E. Triggs	168 15 0
Holloway Bros.	187 0 0	E. B. Tucker*	163 8 0

LOMBARD-WALL.—Providing and fixing hot-water coils in connexion with tubular boilers for auxiliary heating of two new class-rooms each, boys', girls', and infants' departments :—

Matthews & Yates, Limited	£249 10
Wontner-Smith, Gray, & Co.	104 18
Cannon & Sons	99 0
Berry, Campbell, & Co.	95 0
Duffield & Co.	94 16
G. & E. Bradley	81 10
Morris & Co.*	68 16

LOWER CHAPMAN-STREET.—Refitting and extending the boys' and infants' offices in playground, refitting girls' offices on roof, refitting lavatories and providing new drainage scheme :—

Lawrance & Sons	£2,631 0	L. H. & R. Roberts	£2,421 0
Williams & Son	2,540 0	Killingback & Co.	2,328 0
E. Triggs	2,530 10	Johnson & Co.*	2,295 0
Gregar & Son	2,495 0		

[See also next page.

MONTEM-STREET.—New school. Accommodation—boys and girls, total, 452 :—

		‡
J. & M. Patrick	£13,420 o o	+ £158 o o
Williams & Son	13,410 o o	+ 200 o o
Scrivener & Co.	12,985 o o	+ 180 o o
Johnson & Co., Ltd.	12,907 o o	+ 175 o o
Grover & Son	12,844 o o	+ 181 o o
W. M. Dabbs	12,810 o o	+ 161 o o
L. H. & R. Roberts	12,803 o o	+ 200 o o
Treasure & Son	12,672 o o	+ 157 o o
Lawrance & Sons	12,535 o o	+ 160 o o
Miskin & Sons	12,499 o o	+ 110 o o
Leslie & Co., Ltd.	12,495 o 11	+ 98 18 5
Gough & Co.	12,294 o o	+ 180 o o
C. Cox*	12,169 o o	+ 200 o o

‡ If walls of class-rooms, gymnasium, and halls are plastered, add.

"PETERBOROUGH."—Accommodation :—

Scrivener & Co.	£31,646 o o	+ £490 o o
Miskin & Sons	31,331 o o	+ 279 o o
C. Wall	31,322 o o	+ 407 o o
Leslie & Co., Ltd.	31,084 13 11	+ 182 14 4
Lawrance & Sons	30,625 o o	+ 450 o o
J. Carmichael	29,896 o o	+ 289 o o
Spencer, Santo, & Co., Limited	29,869 o o	+ 237 o o
Johnson & Co., Limited	29,536 o o	+ 270 o o
Martin, Wells, & Co.	29,530 o o	+ 390 o o
J. & M. Patrick	29,000 o o	+ 298 o o
Stimpson & Co.*	28,638 o o	+ 266 o o

‡ If walls of class-rooms and halls are plastered, add.

PLOUGH-ROAD.—Cleaning interior (old wing) and painting portion of interior (new wing) :—

R. S. Ronald	£304 o o	O. Craske	£188 5 o
Gregory & Co.	275 o o	F. Chidley	186 15 o
E. B. Tucker	231 2 6	E. Triggs*	168 10 o

PRINCESS MAY-ROAD.—Providing and fixing complete low-pressure hot-water apparatus to three halls, also to six class-rooms on each floor, drawing class-room, cloak-rooms, corridors, and lavatories :—

G. Davis	£880 o	J. & F. May	£670 o
Wontner - Smith, Gray, & Co.	725 o	Wippell Bros. & Row	670 o
J. Grundy	698 o	Cannon & Sons	586 o
Harlow & Son	690 o	Dargue, Griffiths, & Co., Ltd.*	462 8
Berry & Sons	689 o		

PRIORY-GROVE.—Providing and fixing new Trentham boiler and additional mains in connexion with existing low-pressure hot-water apparatus :—

Fraser & Son	£472 10	Wontner - Smith, Gray, & Co.	£287 o
Palowkar & Sons	335 o	Strode & Co.	277 o
W. Simmons	335 o	Stevens & Sons	242 o
Wippell Bros. & Row	327 10	Morris & Co.*	216 10
G. Davis	325 o		

ST. DUNSTAN'S-ROAD.—Refitting offices with separate pans, providing sparge pipe to urinals, refitting children's lavatories, and providing new drainage scheme :—

R. P. Beattie	£3,567 o o	Killingback & Co.	£3,017 o o
J. Carmichael	3,306 o o	Johnson & Co., Ltd.	2,996 o o
L. H. & R. Roberts	3,147 o o	G. Neal	2,942 6 6
E. Triggs	3,137 o o	Martin, Wells, & Co.*	2,877 o o
Lawrance & Sons	3,115 o o		
Godson & Sons	3,091 o o		

SIDNEY-ROAD.—Providing and fixing additional heating surface in class-rooms F and H (boys' department), and renewing connexions of existing radiators :—

W. Simmons	£71 17	Wenham & Waters, Limited	£58 10
Cannon & Sons	69 o	Kite & Co.	55 o
J. & F. May	67 o	G. & E. Bradley*	35 10
J. Grundy	62 7		

SUPPLY of tray and rack cupboards, on running contracts :—

	Tray Cupboards. Each.	Rack Cupboards. Each.
Lascelles & Co.	£11 11 o	£10 7 6
Lonnie & Co.	10 18 o	8 15 o
Spencer & Co.	10 15 o	8 16 o
J. H. W. Martin	9 12 6	6 5 o
H. Bouneau	8 7 6	7 5 o
London School Furniture Co.	8 4 o	6 10 o
T. Cruwys	8 o o	7 o o
Foster, Cooper, & Foster	7 10 9	6 6 9
Hammer & Co., Ltd.	7 15 o	5 10 o*
Garvie & Sons	7 2 6*	5 10 o

TURIN-STREET.—Cleaning windows :—

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The Anchor Window Cleaning Co.	£6 6 o
The Premier Patent (P.P.) Window Cleaning and Decorating Co.*	4 1 3

UPPER NORTH-STREET.—Providing auxiliary heating, including boiler, smoke pipes, and builders' work :—

G. Davis	£640 o	Cannon & Sons	£489 o
Berry & Sons	639 o	Brightside Foundry and Engineering Co., Limited	475 o
Fraser & Son	626 15	Knight & Sons	466 o
Wontner - Smith, Gray, & Co.	610 o	Duffield & Co.*	440 o
Vaughan & Brown, Limited	557 o	Dawson & Co., Limited	257 o
J. & F. May	552 o		
Dargue, Griffiths, & Co., Ltd.	498 16		

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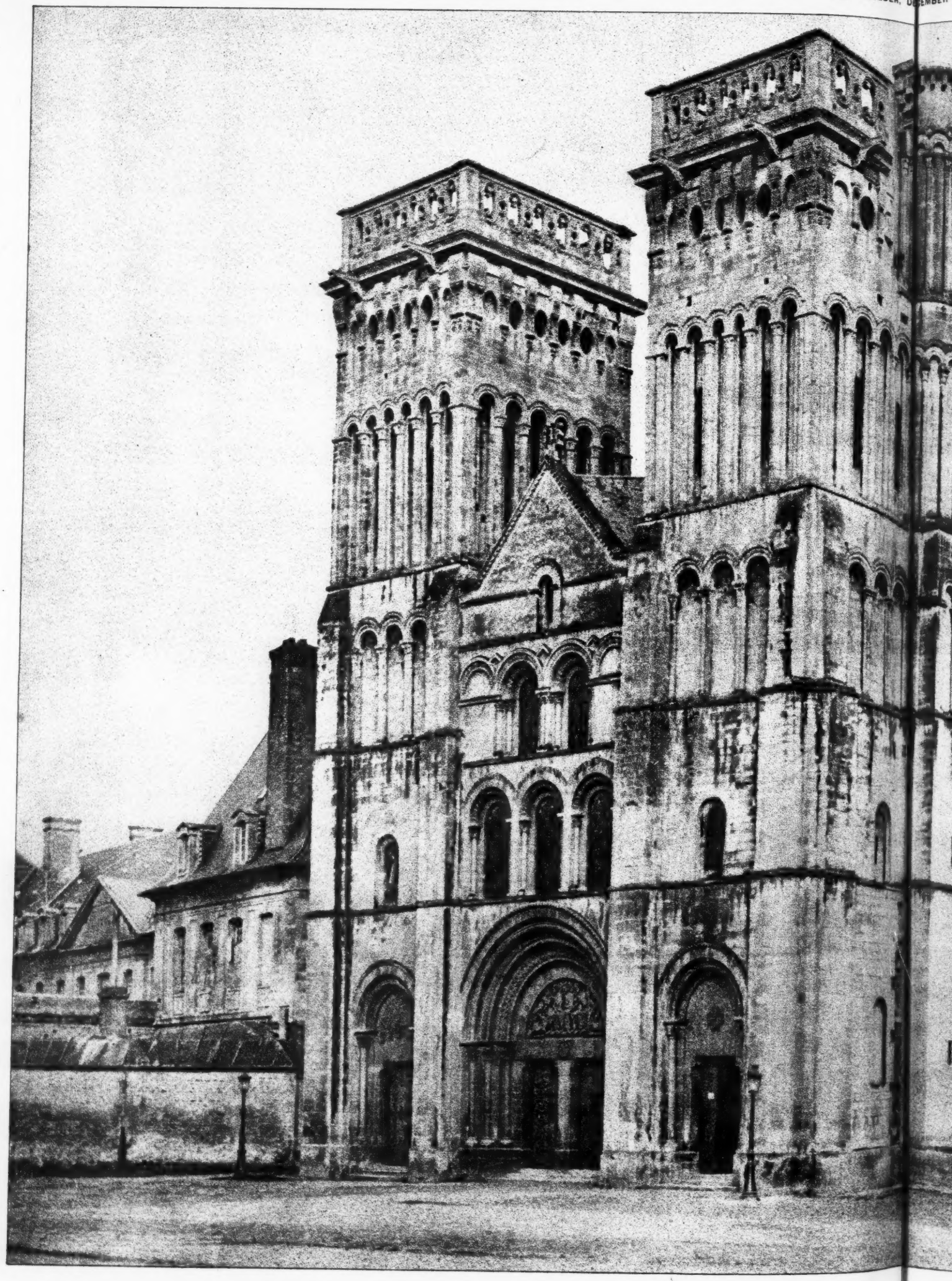

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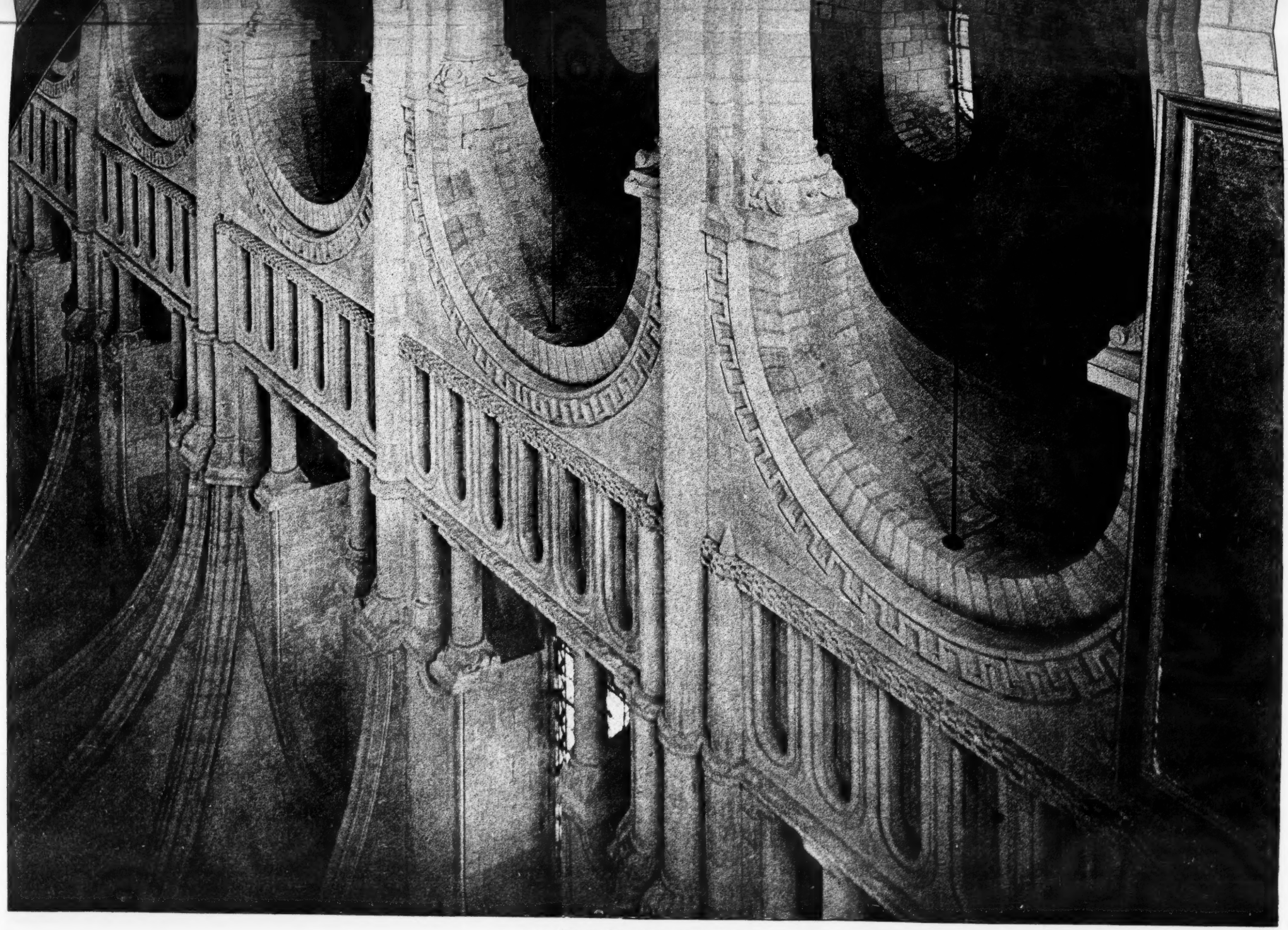

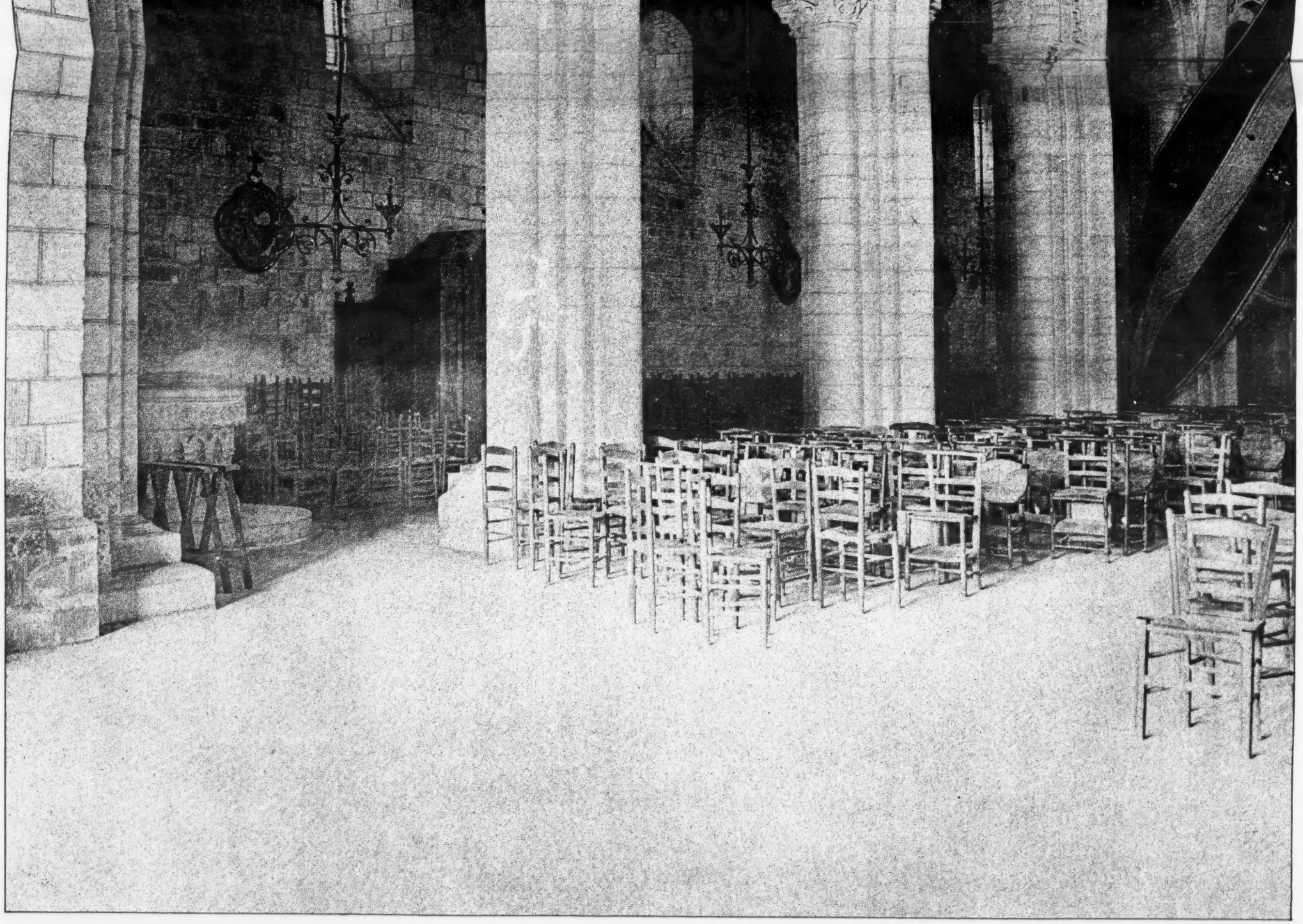

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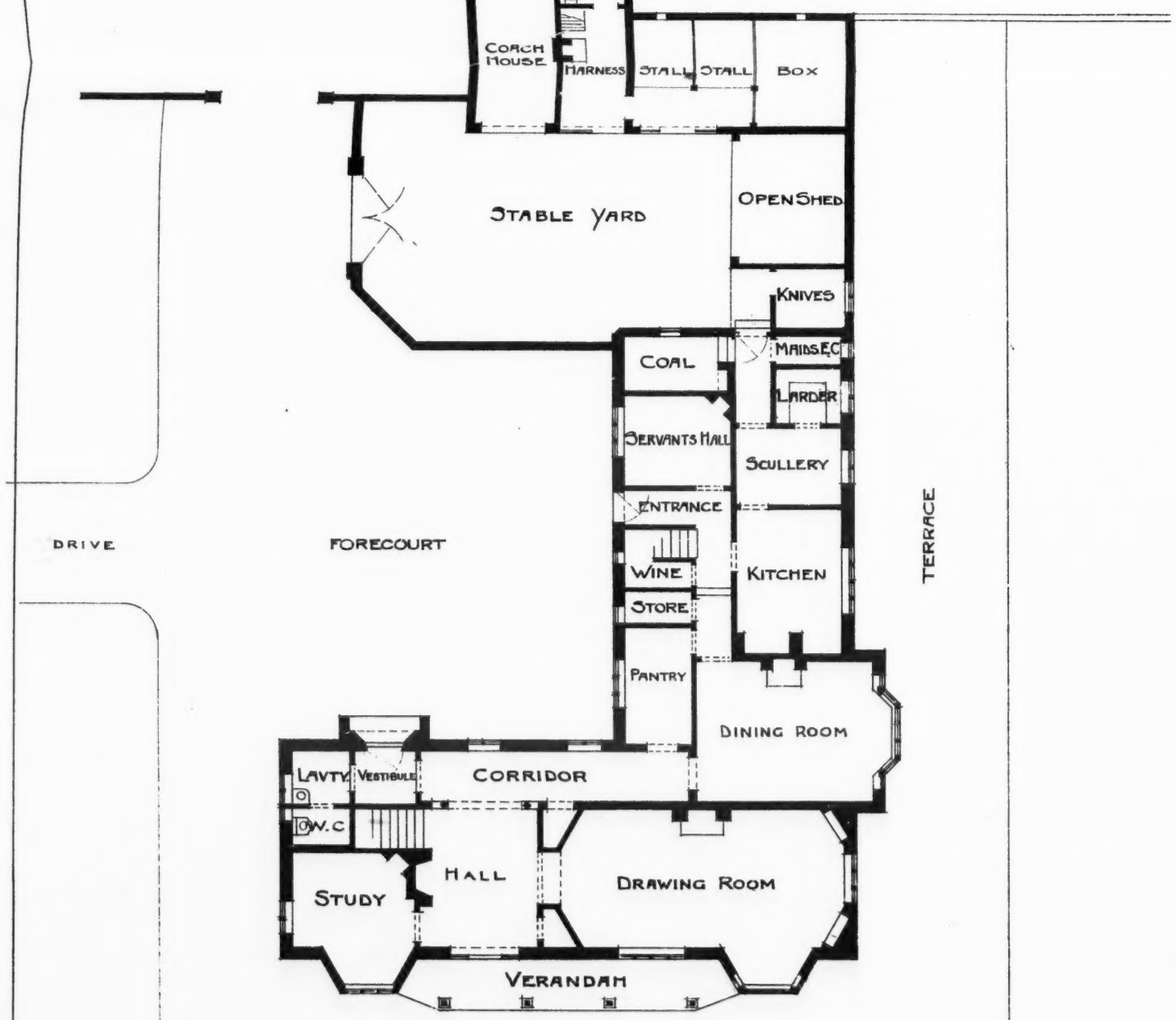

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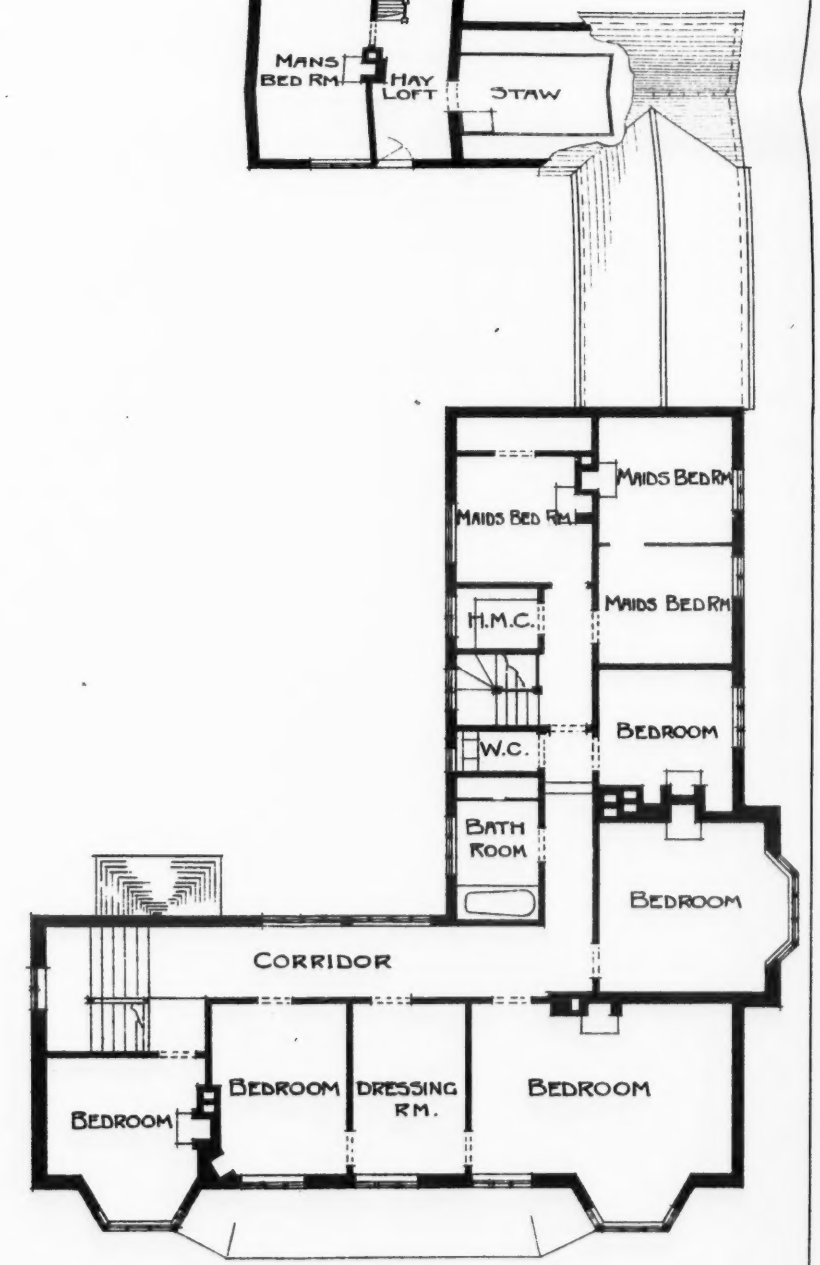

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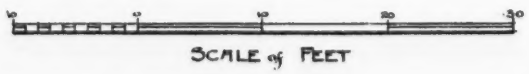

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